CATALOGUE OF

DENVER FOUNDRY & MACHINE CO.

F. M. DAVIS, PROPRIETOR,

DENVER, COLO.

Dis. 15%

CATALOGUE

—OF—

DENVER

FOUNDRY AND MACHINE CO.

MANUFACTURERS OF

MINING MACHINERY

ENGINES AND BOILERS,

SAW MILLS,

HOISTING ENGINES, ETC.

1884

OFFICE AND WORKS:
CORNER EIGHTH AND LARIMER STREETS,
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PREFACE

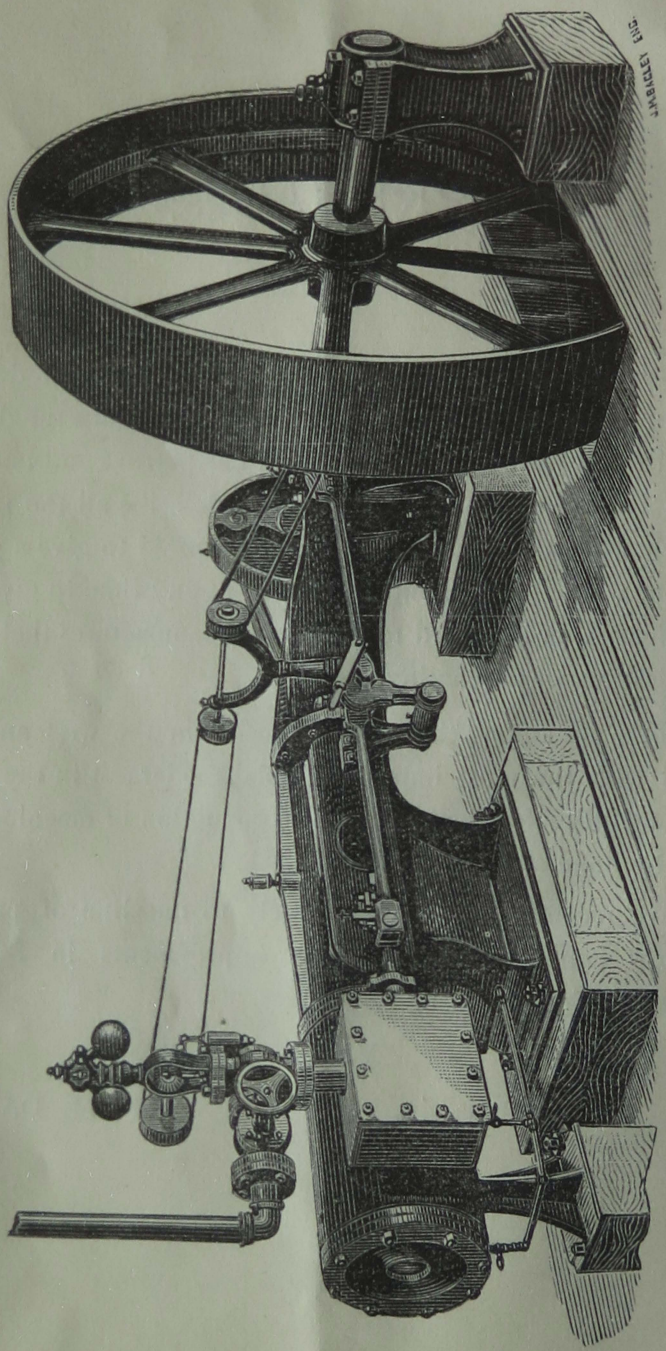
In presenting this CATALOGUE to the public, it is our desire to furnish information in regard to the goods manufactured by us that shall result in the mutual benefit of our patrons and ourselves. We do not undertake in this Catalogue to describe all the machinery which we manufacture, but have endeavored to give a general idea of our work. We should be pleased at any time to give additional information in regard to any of our manufactures that parties may be desirous of purchasing.

Our works are among the most extensive in the west and fully equipped with the most improved tools (the largest in the state), and our facilities for the economical production of machinery are excelled by none.

We have recently added very largely to our line of patterns, which now comprise all the latest improvments in Smelting Furnaces and Concentrating Machinery.

Very Respectfully,

F. M. DAVIS.



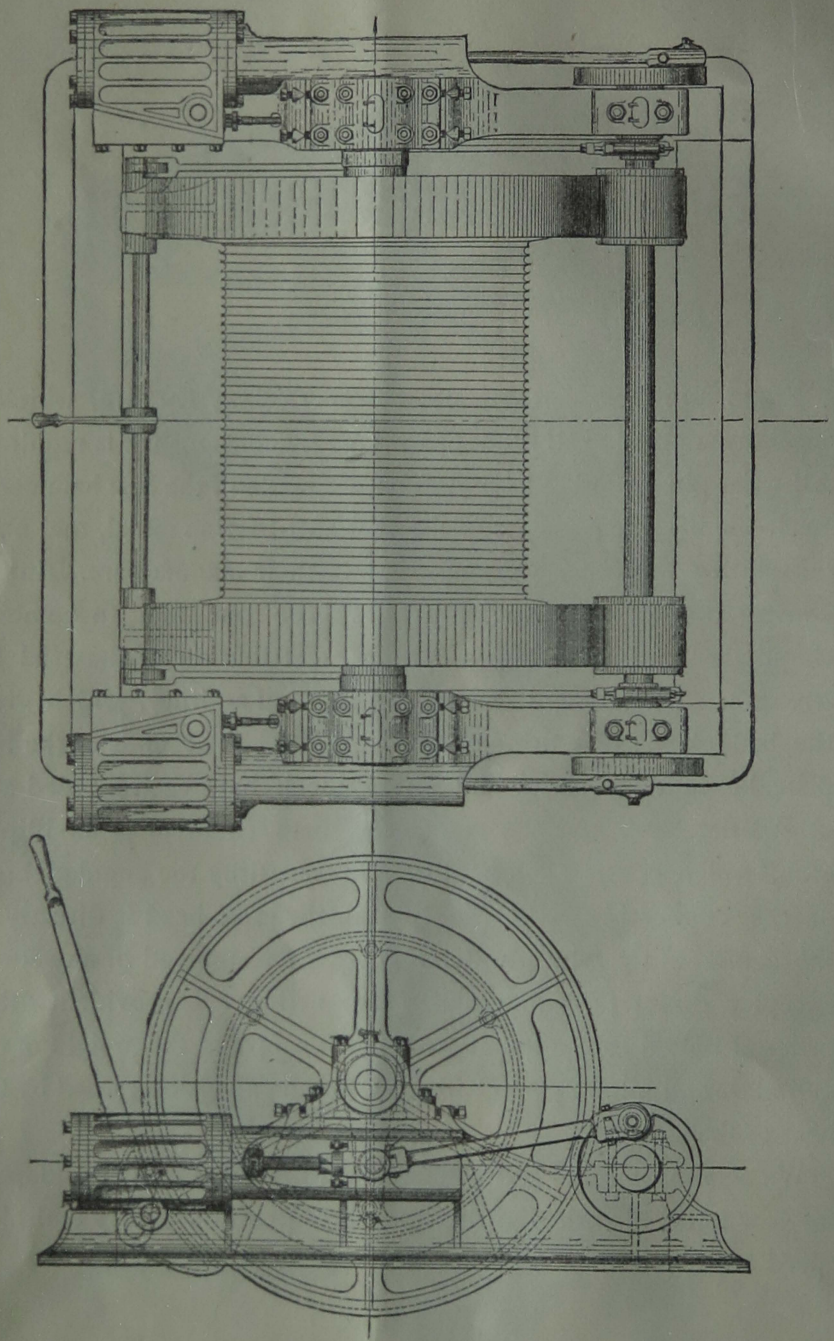
[Fig. 1.]

IMPROVED STATIONARY ENGINE.

STATIONARY ENGINES.

FIG. 1 represents our new style of STATIONARY ENGINE, which is specially adapted to all kinds of work where constant use is required. All wrist pins, crank pin and rods are made of the best hammered steel, the bearing parts are of the best anti-friction metal, and none but skilled workmen are employed in their manufacture. In the construction of this Engine it has been our aim to combine simplicity of parts and a proper distribution of material for strength. Its form and sections are those of a girder, which gives the bed plate great firmness and stability. The ends of the bed plate beneath the slides and pillow block have each a broad and substantial base, and the connection between them is an illiptic arch, which resists all lateral motion caused by the angular thrust of the connecting rod. The pin in the cross head is directly in the center of the wings, which relieves the piston rod of any strain except a direct push and pull. The cylinder is provided with a pedestal bolted to the foundation which supports the weight of the cylinder, and allows perfect freedom for all expansion caused by the heat of the steam.

We also make other styles of engines which are especially adapted for saw mills, electric lighting, or where great durability and high speed are required.



[**Fig. 2.**]

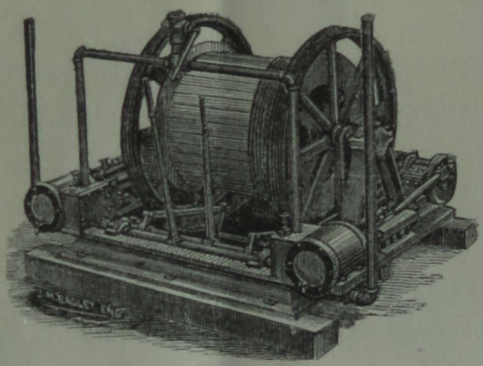
NEW DOUBLE CYLINDER PORTABLE FRICTION HOISTING ENGINE.

Hoisting Engines.

Fig. 2 represents our New Double Cylinder Portable Friction Hoisting Engine. This is a new style which we have just brought out, and which we believe to be the best designed and best built Hoister in the market. All piston rods, valve stems, crank pins and cross-head pins are made of steel. All wearing surfaces are extra large and have proper provision to take up all lost motion. Every Hoister is set up complete at our works and thoroughly tried by steam before being sent out, thereby insuring a perfect working machine. We make them with either grooved V or flat friction, as disired. They are very simple in construction, consequently the expense for repairs are light.

The load can be started very slowly while the engine is running at full speed, avoiding any jerk, and hoisted as rapidly as desired after being got under way, and stopped at any point without slackening the speed of the engine. As soon as the load is raised steam may be partially or entirely shut off while the load is being emptied and the bucket or cage lowered,—thus saving one half the expense in fuel over a reversible engine, which uses about as much steam in lowering as it does in hoisting.

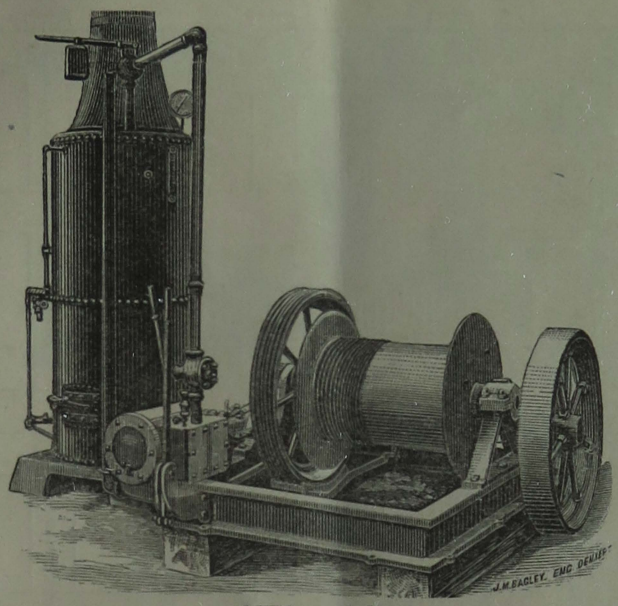
The friction and brake are both operated by one lever, thus leaving one hand at liberty to operate the throttle valve.



[**Fig. 3.**]

DOUBLE CYLINDER IMPROVED FRICTION HOISTING ENGINE.

The above cut (FIG. 3) represents our DOUBLE CYLINDER HOISTING ENGINE. It has a heavy cast iron bed plate, to which is secured the Engines and drum, thus rendering it impossible for any part of the machine to get out of line. It is made very strong and durable in every particular, and is specially adapted for deep mining.



[**Fig. 4.**]

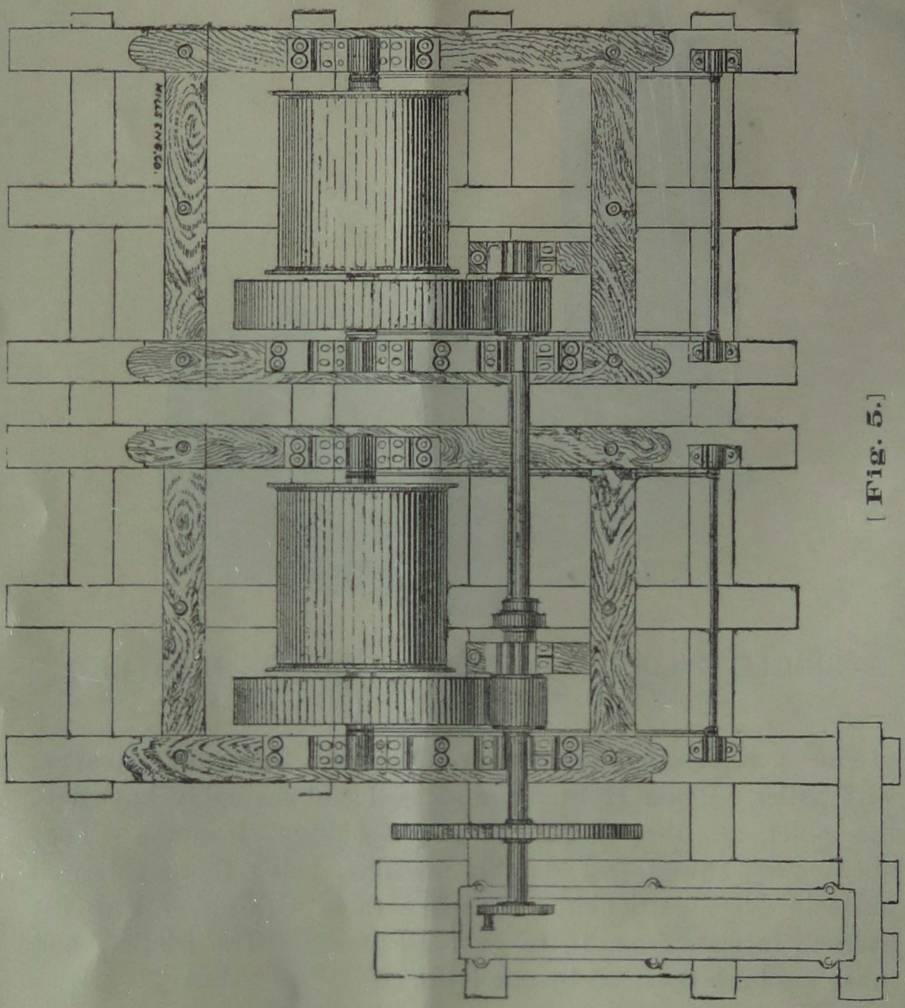
SINGLE CYLINDER IMPROVED FRICTION HOISTING ENGINE.

FIG. 4 represents our SINGLE CYLINDER FRICTION HOISTER, with boiler. These Hoisters are so well and favorably known to the miners that there is little use in describing their merits. They are a very strong and durable machine, being thoroughly well made in every particular. We make them with either V or flat friction, in sizes from 10 to 30 horse power. The friction and brake are both operated by one lever.

We make any of our Hoisters reversible if desired, but only on special orders, as we do not consider them as good as the friction.

We make a specialty of Hoisting Machinery, and we claim to give more value for the same money than any other concern in the country.

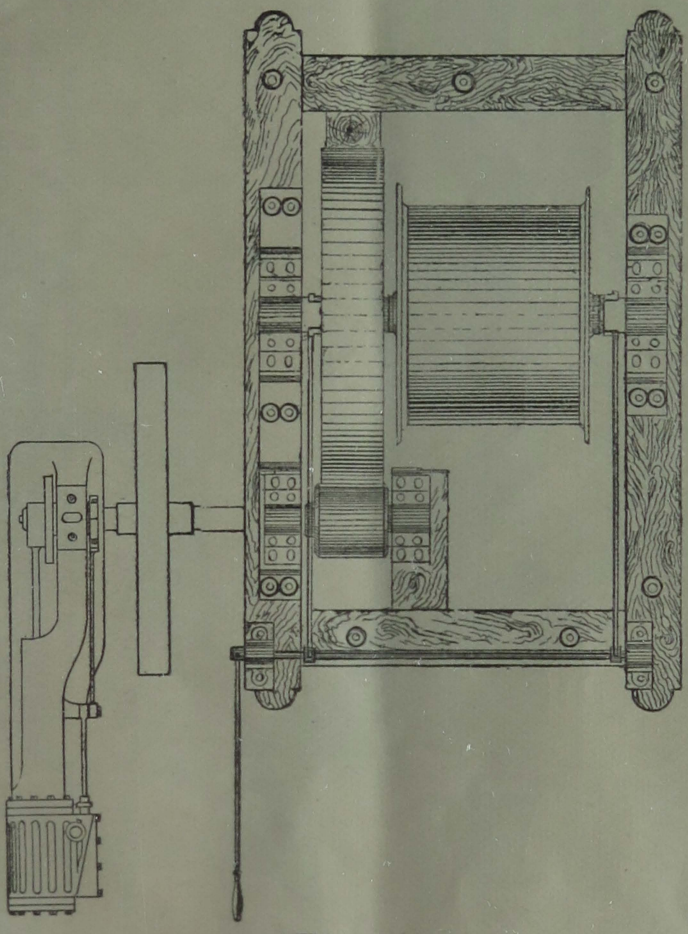
In the back part of this Catalogue we give the names of a few of the parties and mines using our Hoisters and Engines, together with a few testimonials.



[Fig. 5.]

DOUBLE DRUM STATIONARY HOISTER.

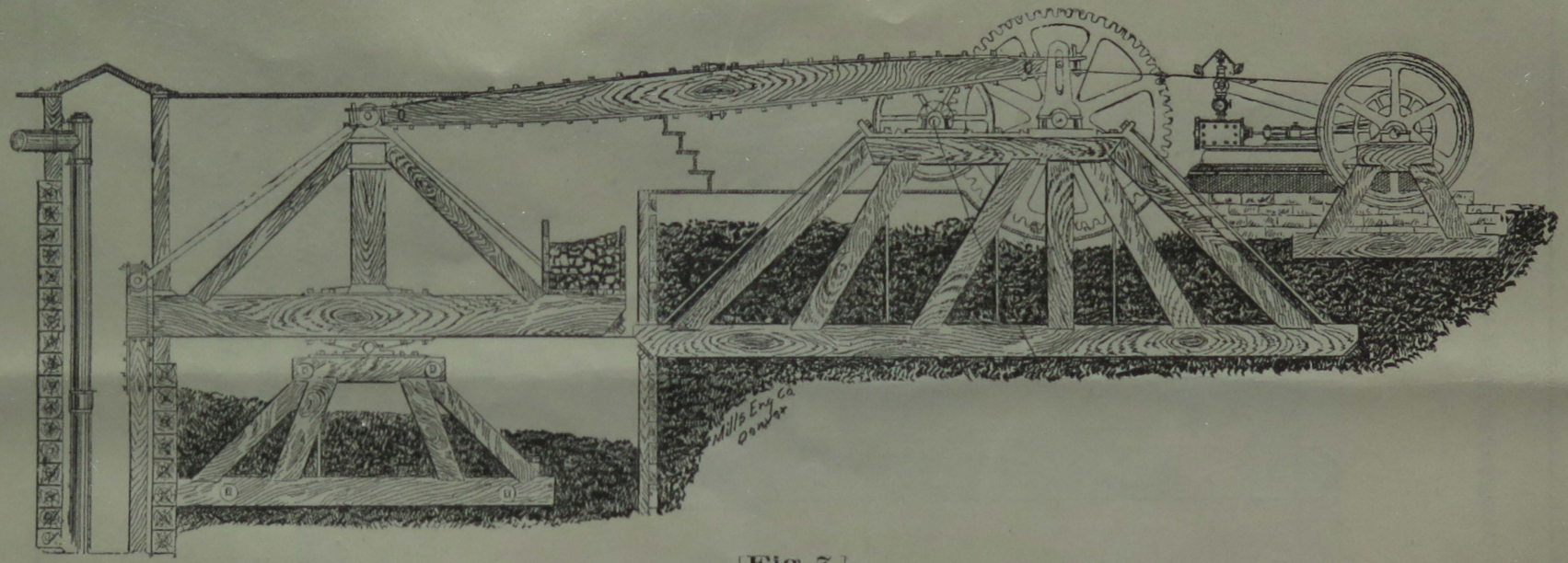
FIG. 5 represents our DOUBLE DRUM STATIONARY FRICTION HOISTER. Both drums are operated from main shaft of engine, and either one or both can be run at the same time. This is a very handy rig where two or more shafts are to be operated, as one man can attend to both drums.



[**Fig. 6.**]

SINGLE DRUM STATIONARY HOISTER.

The above cut (FIG. 6) represents a plant in operation on the Roseville Alta Consolidated, the William Wallace, and Ruby Mines, of Leadville; and several others are using the same style. We make these machines in any size, from 25 horse power up.



[Fig. 7.]

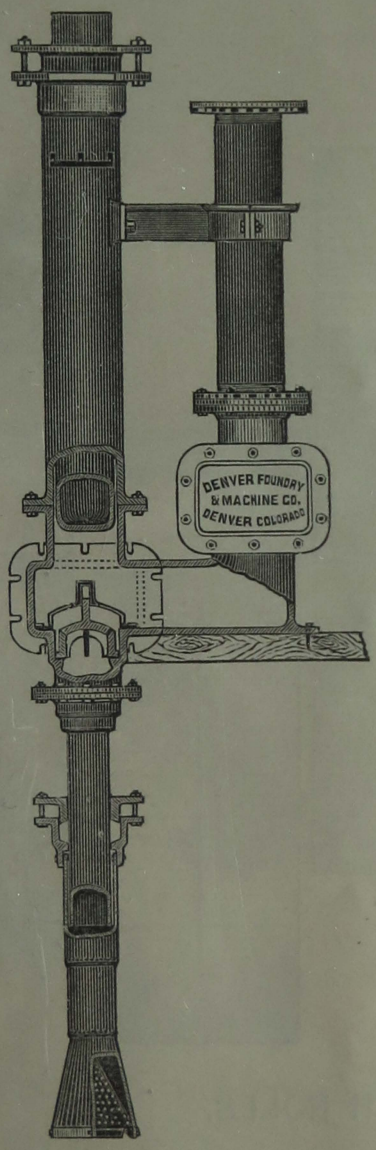
MACHINERY FOR DRIVING CORNISH PUMP.

For depths of over 200 feet and large quantities of water, the CORNISH PUMPS are the only satisfactory mining pumps yet devised. Our Pumps will work in the most gritty water. The wearing parts are very inexpensive and easily replaced. The valves can be taken out and repaired without interfering with any other part of the Pump. The covers of the valve chambers are hinged and can be opened without removing the bolts or nuts, thus preventing their loss by falling down the shaft.

We manufacture several sizes of Pumps, and are prepared to furnish plants for depths of from 200 feet to any depth desired.

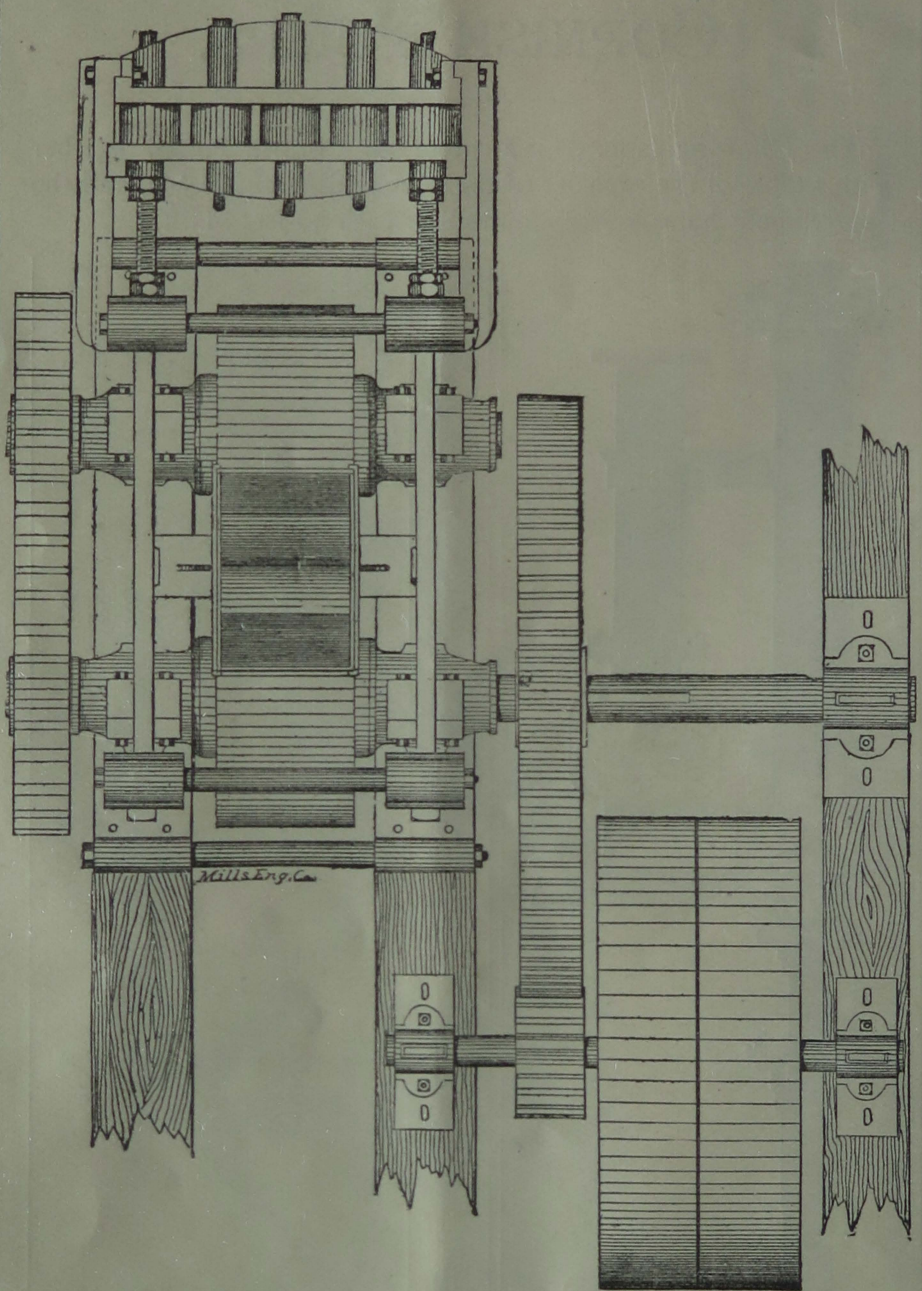
Cornish Pumps.

The following (Fig. 8) is a cut of our Cornish Pump, together with a table of the capacity of the same at different speeds, and the approximate horse power required for each 50 feet of lift.



[Fig. 8.]

Size of Plunger in inches.	Length of Stroke in feet.	No. of Stroke per minute.	Gallons per minute, allowing for waste.	Approx. H. P. for each 50 feet of lift, allowing for friction.
8	4	10	95	1⅔
8	4	12	113	2.
8	5	10	117	2.1
8	5	12	141	2½
10	5	8	147	2⅔
10	5	10	184	3.1
10	6	8	176	2.9
10	6	10	220	3¾
10	8	12	294	5½
12	8	12	390	7½
14	8	12	576	11.



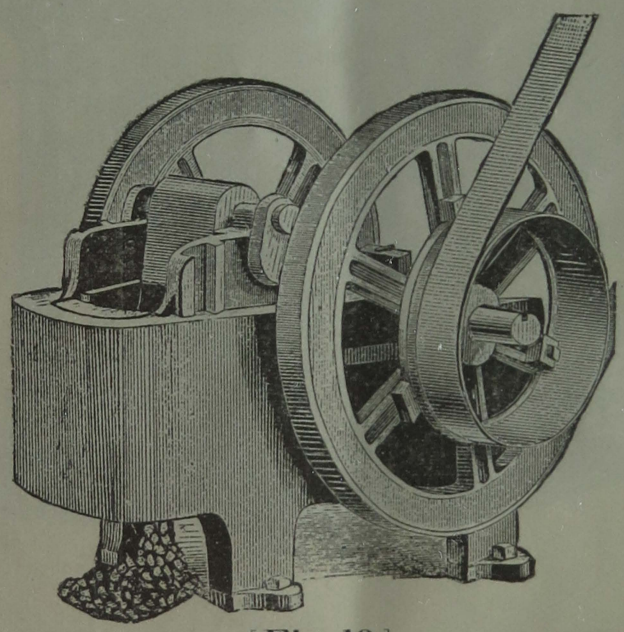
[Fig. 9.]

PLAN OF CORNISH ROLLS.

CORNISH ROLLS.

FIG. 9 represents our CORNISH ROLLS, which are made from improved patterns and of the best material and workmanship. The roll shafts are made of hammered iron, and the shells of a mixture of iron, which experience has demonstrated to be the best.

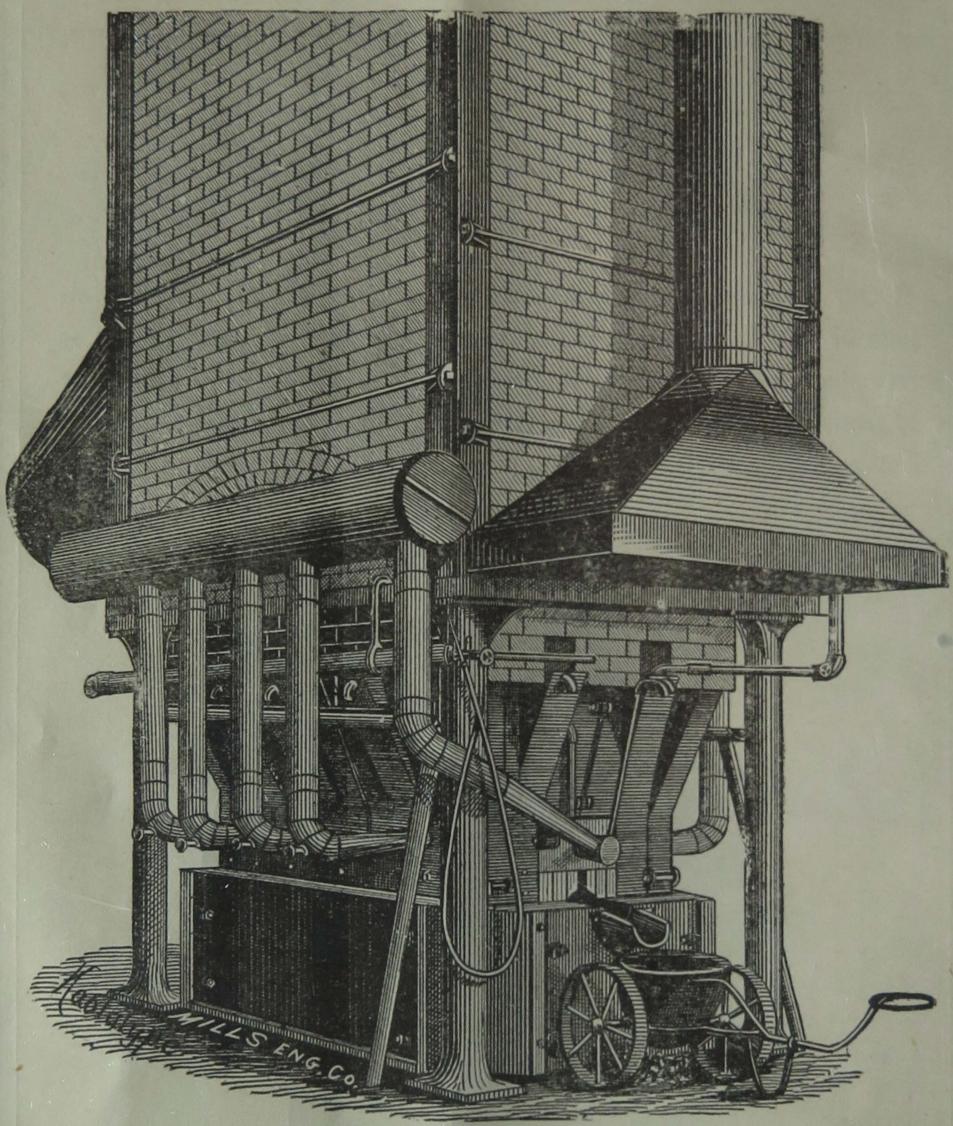
We make the following sizes: 12x12, 12x18, 12x22 and 14x27.



[**Fig. 10.**]

ORE CRUSHERS.

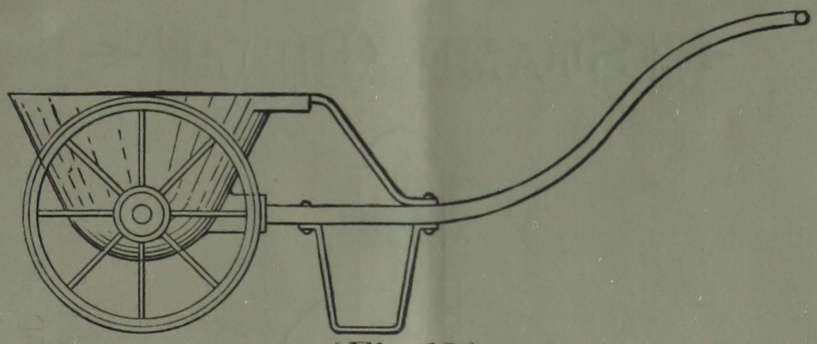
We make the following sizes of Crushers: 3x1½, 10x4, 10x7, 15x9 and 15x10.



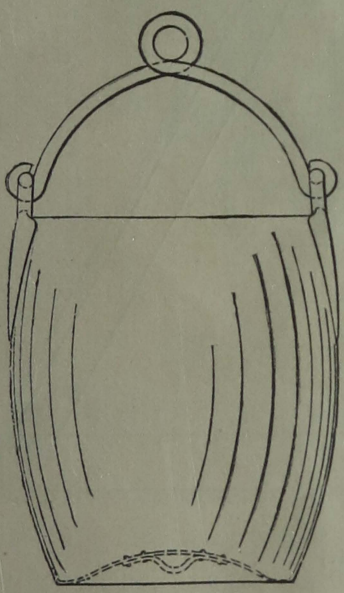
[Fig. 11.]

Water Jacket Furnace.

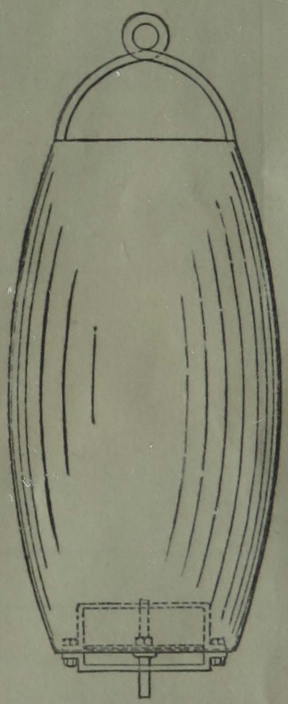
Our Furnaces are made from the most approved patterns, and of the best material.



[Fig. 12.]
SLAG CART.

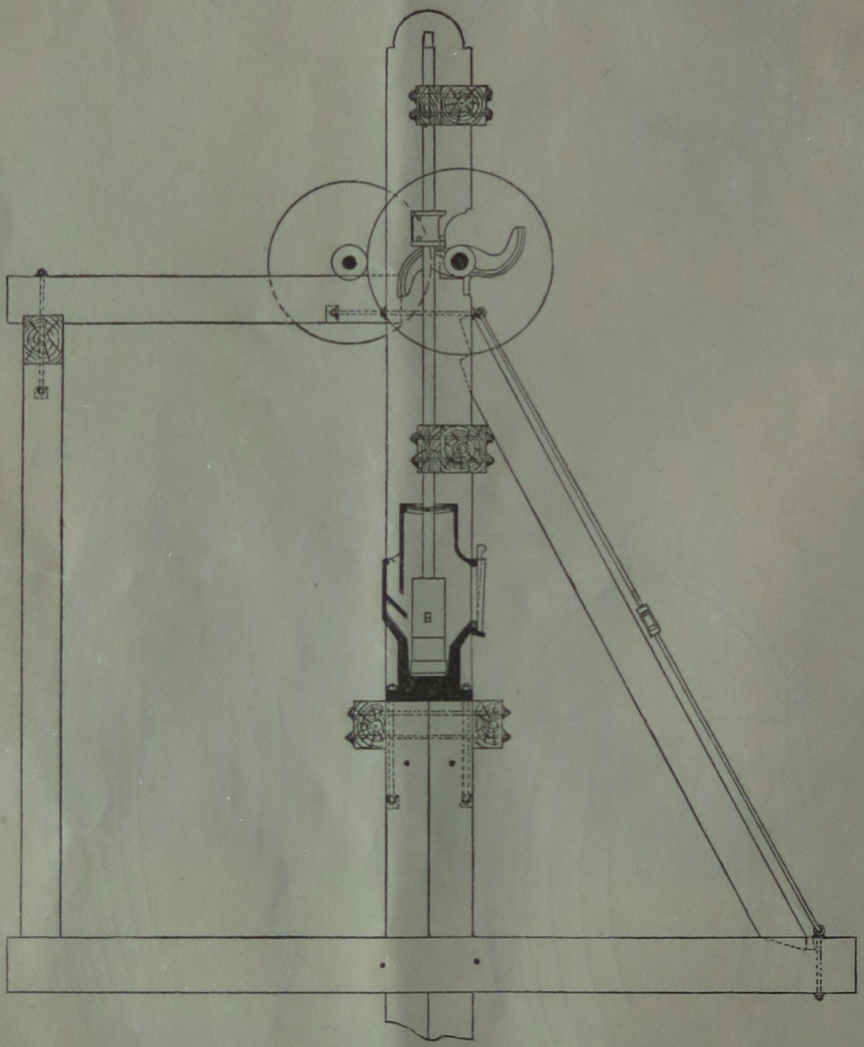


[Fig. 13.]
ORE BUCKET.



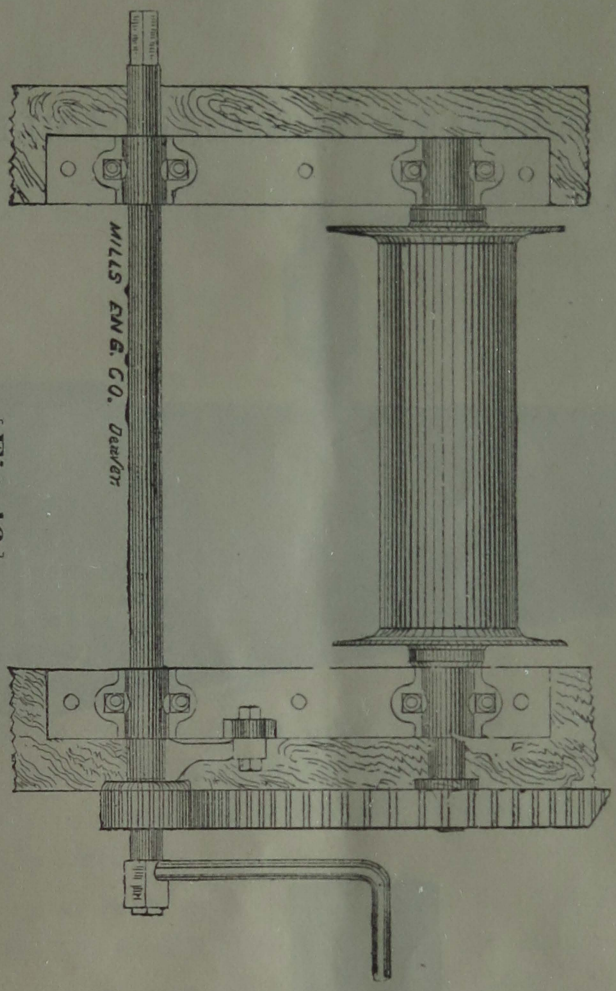
[Fig. 14.]
WATER BUCKET.

STAMP MILLS



[Fig. 15.]

We manufacture STAMP MILLS for both silver and gold ores, and for either wet or dry crushing.

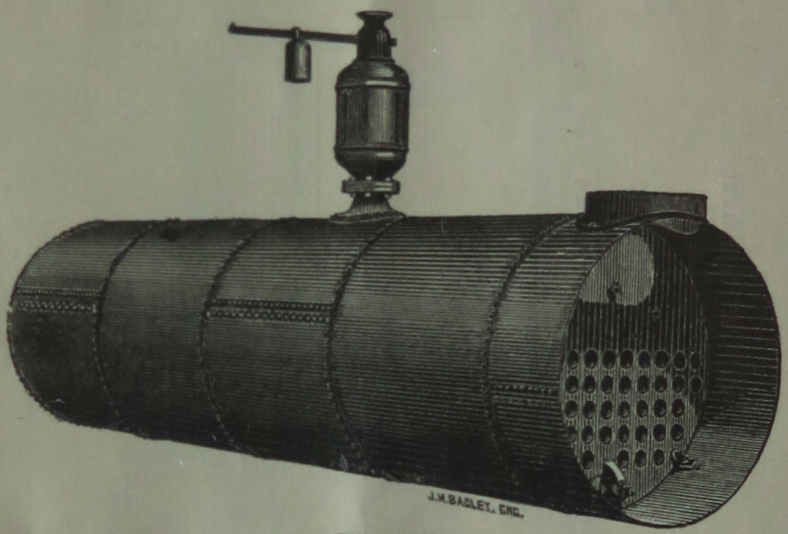


[Fig. 16.] HAND WINDLASS.

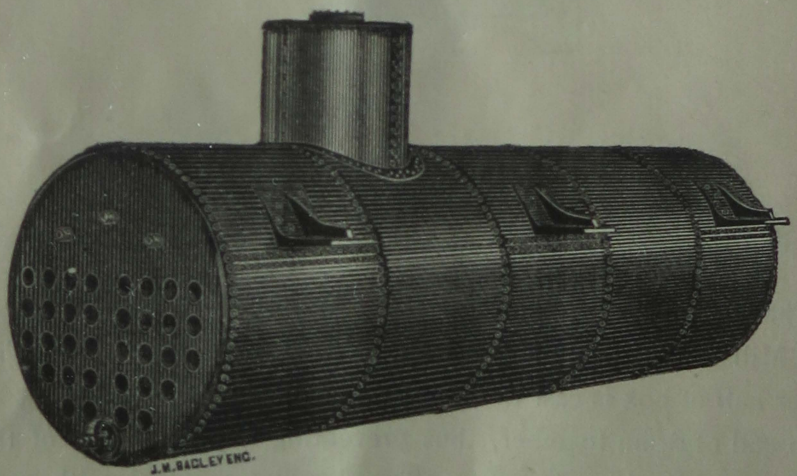
HAND WINDLASS.

The above cut represents our HAND WINDLASS for Derrick Mines and Mills. The drum is cast iron, on a wrought iron shaft. The lower half of box is cast in sole plate, connecting the two boxes at each end of drum together, thus preventing any spreading of the boxes or slipping of cogs. Two handles supplied with each machine.

STATIONARY TUBULAR BOILERS.



[Fig. 17.]



[Fig. 18.]

STATIONARY BOILERS.

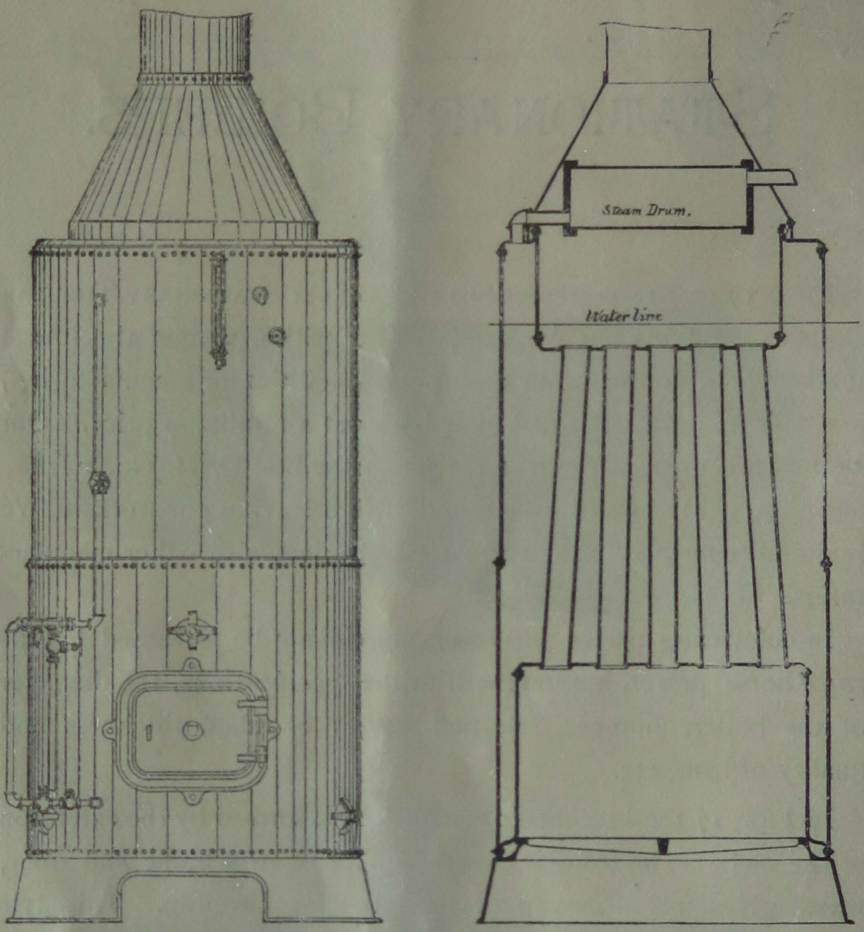
FIGS. 17 and 18 represent two styles of our STATIONARY TUBULAR BOILERS. Buying our stock in large quantities, we get the lowest market rates, and with our unsurpassed facilities for manufacturing, are able to turn out a first class boiler at a minimum price. Our Boilers are made with great care from the best C. H. No. 1 Iron, and thoroughly braced and tested before leaving our works. We invite a comparison of our work and prices with o ther manufacturers.

In comparing prices purchasers should not be governed by the *rated* horse power, but look well to the specifications, the diameter of the boiler, number, size and length of tubes, thickness and quality of iron, etc.

In FIG. 17 the breechen or smoke box is formed by the extension of the shell. The front is closed with a cast iron frame and door, which gives free access to all the tubes for cleaning. This style of smoke box is much more serviceable than the old style of breechen. These boilers are intended to be set with a three-quarter Fire Front, and are supported by it and the back stand.

FIG. 18 is supported by lugs rivited to the sides, which rest on rollers and plates set in the mason work, and are provided with full Fire Fronts.

UPRIGHT BOILERS.

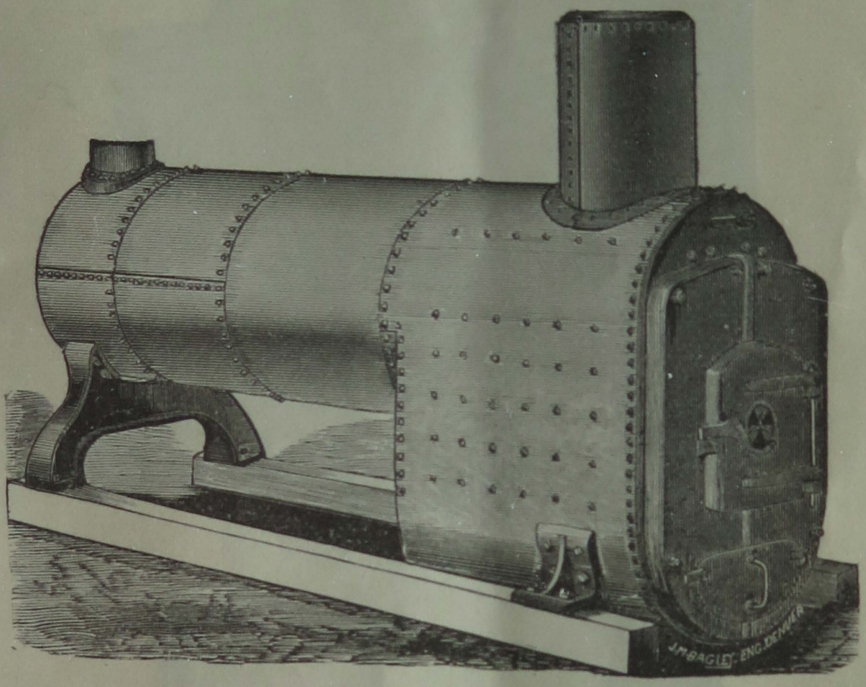


[Fig. 19.]

FIG. 19 represents our UPRIGHT TUBULAR BOILER, with submerged tubes and steam drum. The upper tube sheet is set down below the top of the boiler proper, thus allowing water to be carried as high as top of tubes and still leave a large area for steam above water line. The water line is thus above the crown sheet and the tubes entirely submerged, preventing over-heating and loosening of the tubes. They are also provided with a steam drum which is placed inside the hood.

All our boilers are manufactured from the very best material throughout, and are thoroughly tested before leaving our shop.

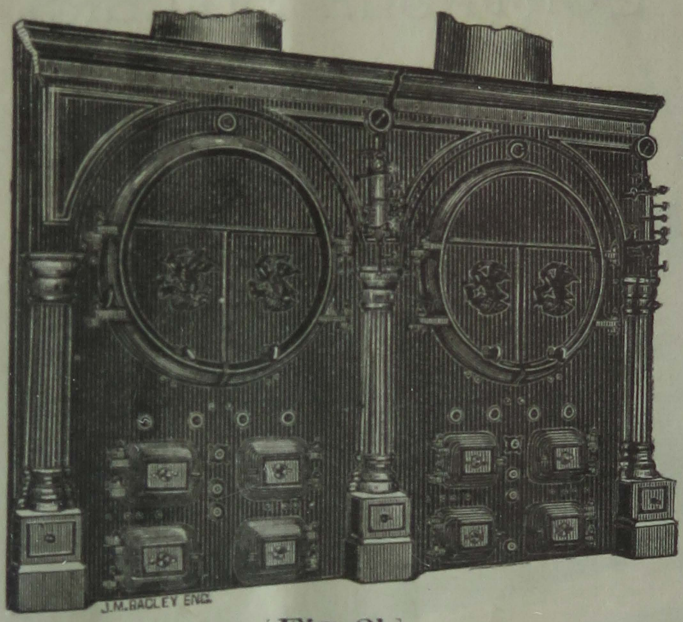
PORTABLE BOILERS.



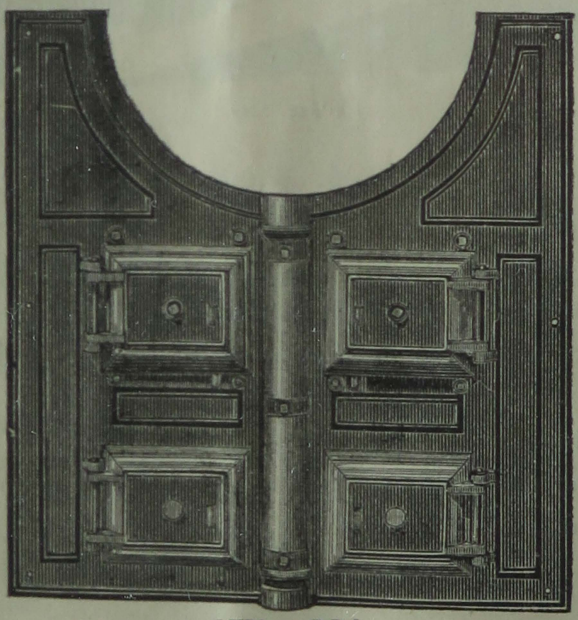
[Fig. 20.]

These Boilers are of the most approved proportions, have round water bottom fire box, large furnaces with removable fronts, giving easy access to tubes, etc. The water bottoms admit of free circulation of water and are a perfect safeguard against fire under the furnace, and allows the sediment to settle below the line of the fire. Hand holes are provided in suitable places, giving easy access to the inside for cleaning. They are made of the very best material, and thoroughly stayed and tested at 150 pounds hydrostatic pressure.

FIRE FRONTS

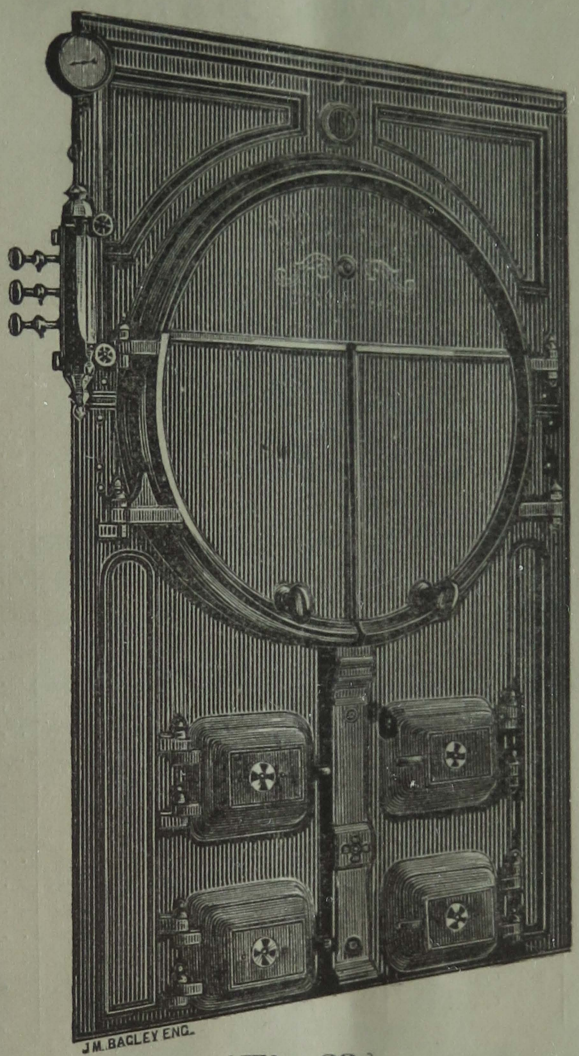


[Fig. 21.]



[Fig. 22.]

FIRE FRONTS



[**Fig. 23.**]

We have patterns for several styles of FIRE FRONTS, three of which are shown in FIGS. 21, 22 and 23. The full fronts (FIGS. 21 and 22), require the shell of the boiler to be extended so as to form a smoke box between the boiler and the front, the fire door liners being of suitable width for the depth of the smoke box. These Fronts are adapted for boilers of fifty-four inches diameter and over.

The three-quarter Front shown in FIG. 23, is used with boilers of all sizes up to fifty-four inches diameter. It costs less money than the full Front, but will be found to equal it in durability. These Fronts are supplied with the usual door-liners and grate bearing bars.

GRATE BARS

We have patterns for a great variety of GRATE BARS, from fifteen inches to sixty inches in length.

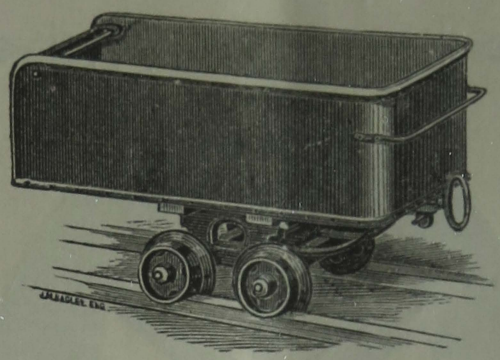
LONG GRATE BARS.

Length in Inches.	Width in Inches.	Opening in Inches.	No. Bars.	Weight.
60	2½	½	2	. . . . .
54	2¾	¾	2	. . . . .
54	2⅝	⅝	2	. . . . .
52	2½	½	2	. . . . .
48	2½	⅝	2	. . . . .
48	3	⅝	2	. . . . .
48	2¼	⅜	2	. . . . .
41	5¼	⅝	3	. . . . .
40	3	⅝	2	. . . . .
36	2⅞	⅝	2	. . . . .
36	2¾	5-16	2	. . . . .
36	1	⅜	1	. . . . .
34	2¼	⅜	2	. . . . .
32½	2⅜	½	2	. . . . .
30	2⅝	⅝	2	. . . . .
30	2¾	½	3	. . . . .
27⅜	3¼	5-16	3	. . . . .
24	3	¾	2	. . . . .
24	2½	⅜	2	. . . . .
22	3½	½	3	. . . . .
20	1⅞	7-16	2	. . . . .
18	1⅛	⅜	17	. . . . .
15	2⅜	5-16	3	. . . . .
15	1⅛	½	1	. . . . .
15	1	⅜	1	. . . . .

ROUND GRATES FOR UPRIGHT BOILERS.

Size of Boiler.	Size of Grate	Opening in Inches.	Weight.	Size of Boiler.	Size of Grate	Opening in Inches.	Weight.
54	51½	7-16	. . . . .	36	33	⅝	. . . . .
48	42½	½	. . . . .	30	27½	½	. . . . .
44	38¾	¾	. . . . .	24	22½	½	. . . . .

Rotary Dumping Ore Cars.



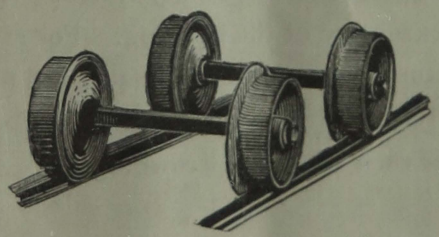
[**Fig. 24.**]

The most perfect Mining Car yet devised,—dumping at the end or upon either side. To save wear and tear the Car has a false bottom of wood covered with iron, which is easily replaced when worn.

We make a light and heavy Car of same style. Size of Car body 20 inches deep, 24 inches wide and 48 inches long. Standard gauge 18 inches.

———o———

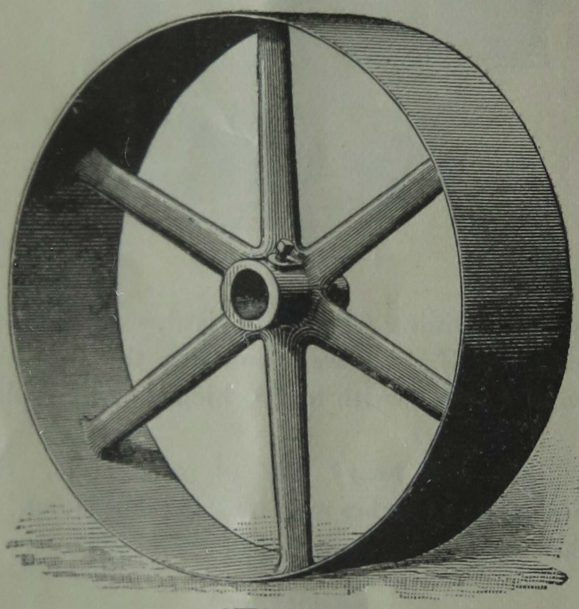
Wheels and Axles.



[**Fig. 25.**]

We manufacture Wheels and Axles any size and tread desired.

PULLEYS



[**Fig. 26.**]

In ordering PULLEYS always specify whether *crowning* or *straight* face; also, whether *set-screwed* or *key-seated*. If possible always send a wire the exact size of the shafting. For a shifting belt the Pulley should be turned straight on the face, and for a non-shifting belt it should be turned with a crowning face. For tight and loose Pulleys the face of each should be crowning.

PULLEYS, Bored, Turned or Balanced, with Set Screws or Key Seats. Tight & Loose Pulleys 25 Cts. Extra for Facing Hubs.

Diam in.	Face, 3 in.	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22
6	$2 15	$2 35	$2 55	$2 80	$3 00	$3 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	2 25	2 50	2 75	3 00	3 25	3 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	2 50	2 75	3 00	3 25	3 50	3 75	$4 00	$4 25	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	2 55	2 75	3 00	3 25	3 50	3 75	4 00	4 25	$4 50	$5 50	.....	.....	.....	.....	.....	.....	.....
10	2 75	3 00	3 25	3 50	3 75	4 00	4 25	4 75	5 25	5 50	.....	.....	.....	.....	.....	.....	.....
11	2 85	3 10	3 30	3 60	3 90	4 25	4 50	5 00	5 25	5 75	.....	.....	.....	.....	.....	.....	.....
12	3 00	3 25	3 55	4 00	4 25	4 60	5 00	5 50	5 80	6 25	.....	.....	.....	.....	.....	.....	.....
13	3 25	3 50	3 75	4 10	4 50	5 00	5 30	5 75	6 25	6 75	.....	.....	.....	.....	.....	.....	.....
14	3 35	3 65	4 00	4 25	4 75	5 25	5 75	6 25	6 75	7 25	.....	.....	.....	.....	.....	.....	.....
15	3 45	3 85	4 20	4 55	5 00	5 65	6 10	6 70	7 25	7 75	.....	.....	.....	.....	.....	.....	.....
16	3 75	4 10	4 40	4 85	5 45	6 00	6 50	7 25	7 75	8 25	$8 75	$9 25	$9 75	.....	.....	.....	.....
17	3 90	4 30	4 75	5 20	5 75	6 35	6 85	7 80	8 00	8 50	9 00	9 75	10 50	.....	.....	.....	.....
18	4 00	4 45	4 85	5 50	6 00	6 65	7 25	7 90	8 50	9 20	9 75	10 25	10 75	.....	.....	.....	.....
19	4 30	5 00	5 40	6 25	6 75	7 25	7 75	8 50	9 00	9 75	10 25	10 75	11 50	.....	.....	.....	.....
20	4 50	5 25	5 75	6 50	7 00	7 50	8 00	8 75	9 25	10 00	10 75	11 50	12 25	.....	.....	.....	.....
21	4 75	5 50	6 00	6 85	7 50	8 25	9 00	9 75	10 50	11 25	12 00	12 75	13 75	.....	.....	.....	.....
22	5 00	5 75	6 25	7 00	7 75	8 50	9 50	10 50	11 25	12 00	12 75	13 50	14 50	.....	.....	.....	.....
23	5 25	5 85	6 50	7 25	8 00	9 00	9 75	10 50	11 50	12 25	13 00	13 75	14 75	.....	.....	.....	.....
24	5 50	6 00	6 75	7 50	8 50	9 50	10 25	11 00	11 75	12 50	13 25	14 25	15 25	$16 25	.....	.....	.....
25	6 00	6 50	7 00	7 75	8 50	9 75	11 00	11 75	12 50	13 25	14 00	15 00	16 00	17 00	.....	.....	.....
26	6 50	7 00	7 50	8 25	9 00	10 00	11 50	12 50	13 25	14 25	15 00	15 75	16 50	17 50	.....	.....	.....
27	7 00	7 50	8 00	9 00	10 00	11 00	12 00	13 50	14 25	15 00	15 75	16 50	17 50	18 50	.....	.....	.....
28	7 50	8 00	8 50	9 50	11 50	11 50	12 50	14 25	15 25	16 25	17 00	18 00	19 00	20 00	.....	.....	.....
29	8 50	9 00	9 75	11 00	11 75	12 75	13 75	14 75	15 75	16 75	17 75	19 00	20 00	21 00	.....	.....	.....
30	9 00	9 50	10 50	11 50	12 50	13 50	14 50	15 50	16 50	17 50	18 75	20 00	22 00	23 50	.....	.....	.....
31	.....	10 00	11 00	12 00	13 00	14 00	15 00	16 00	17 00	18 00	19 50	21 00	23 00	24 50	.....	.....	.....
32	.....	10 50	11 25	12 25	13 25	14 50	15 50	16 50	17 50	18 50	20 25	22 00	23 50	25 00	.....	.....	.....

PULLEYS, CONTINUED.

Diam in.	Face, 4 in.	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24
33	11 00	11 75	12 75	13 75	15 00	16 25	$17 50	$18 50	$19 50	$21 50	$23 25	$25 50	$27 00	.....	.....	.....	.....
34	11 25	12 00	13 00	14 25	15 50	16 75	18 00	19 20	20 50	22 50	24 25	26 50	28 50	.....	.....	.....	.....
35	11 75	12 50	13 50	14 75	16 00	17 25	18 50	20 00	21 50	23 50	25 00	27 50	29 50	.....	.....	.....	.....
36	12 00	12 75	13 75	15 00	16 25	17 50	19 00	20 50	22 00	24 00	25 75	28 00	30 25	$35 25	$40 75	.....	.....
38	13 00	14 50	15 50	17 00	18 25	20 00	21 50	23 00	24 75	27 00	29 25	31 50	33 50	37 50	42 00	.....	.....
40	.....	.....	17 00	18 00	19 25	21 00	22 50	25 25	27 00	29 25	31 75	33 50	35 25	39 50	43 50	$48 00	$54 00
42	.....	.....	18 00	19 50	21 00	22 75	24 50	26 50	28 75	31 25	33 50	36 50	39 50	44 00	48 50	54 50	60 00
44	.....	.....	19 00	21 00	22 25	24 50	26 50	28 75	31 00	33 75	35 75	38 25	40 75	45 75	51 00	57 00	63 00
46	.....	.....	20 00	21 75	23 25	25 75	28 00	30 50	33 25	36 25	39 00	42 25	45 25	50 00	55 00	63 00	70 00
48	.....	.....	21 00	23 00	24 75	27 50	30 00	33 00	35 75	38 50	42 00	44 00	46 75	52 25	60 00	70 00	80 00
50	.....	.....	23 00	25 00	27 00	29 50	32 50	35 25	38 00	41 75	45 00	48 50	52 00	58 50	65 00	75 00	85 00
52	.....	.....	25 00	28 00	30 50	33 00	35 00	37 50	40 00	43 50	47 00	51 00	54 00	62 00	71 50	80 00	90 00
54	.....	.....	27 00	31 00	34 00	36 00	38 00	41 00	43 00	46 50	51 50	54 50	57 50	68 00	77 50	86 50	95 00
56	.....	.....	29 00	33 00	36 50	38 50	40 00	43 00	46 00	50 00	54 00	57 50	61 00	70 00	80 00	90 00	100 00
58	.....	.....	31 00	35 00	38 50	40 50	42 50	46 50	50 00	54 00	58 00	62 00	66 00	75 00	85 00	96 00	106 00
60	.....	.....	33 00	36 50	40 00	43 00	46 00	50 00	54 00	59 00	63 00	68 00	72 00	80 00	90 00	102 00	112 00
62	.....	.....	35 00	39 00	42 00	44 50	48 00	52 00	56 00	61 00	65 00	70 00	75 00	85 00	95 00	105 00	115 00
64	.....	.....	37 00	41 00	44 00	47 50	50 00	54 50	58 50	64 00	68 50	74 00	79 00	89 00	100 00	110 00	120 00
66	.....	.....	39 00	43 00	47 00	51 00	54 00	59 00	62 50	68 00	73 00	78 00	83 00	93 00	105 00	115 00	128 00
68	.....	.....	41 00	45 50	49 50	53 50	57 00	62 00	65 50	71 00	76 00	81 50	86 50	97 00	110 00	120 00	134 00
70	.....	.....	43 00	47 50	52 00	56 00	60 00	65 00	69 50	75 00	80 00	85 50	90 50	101 00	114 00	125 00	140 00
72	.....	.....	45 00	50 00	54 00	59 00	64 00	69 00	73 50	79 00	84 00	89 50	94 50	106 50	118 00	130 00	147 00
78	.....	.....	.....	.....	.....	.....	77 50	.....	87 50	.....	97 50	.....	107 50	118 50	129 00	141 00	155 00
84	.....	.....	.....	.....	.....	.....	91 00	.....	100 00	.....	110 00	.....	120 00	130 00	140 00	150 00	160 00
90	.....	.....	.....	.....	.....	.....	106 00	.....	117 00	.....	127 00	.....	137 00	147 00	157 00	167 00	177 00
96	.....	.....	.....	.....	.....	.....	125 00	.....	135 00	.....	145 00	.....	155 00	165 00	175 00	185 00	195 00
100	.....	.....	.....	.....	.....	.....	135 00	.....	145 00	.....	155 00	.....	166 00	176 00	186 00	196 00	206 00

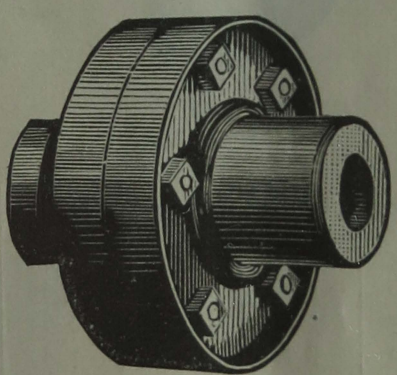
Wrought Iron Turned Shafting.

For furnishing Shafting we have facilities unsurpassed by any shop in the West.

Diameter.	Price per Foot.	Weight per ft.	Diameter.	Price per Foot.	Weight per ft.
1	$ .33	2.61	2 7-16	$1.30	15.56
1 3-16	.46	3.70	2 11-16	1.53	18.91
1 1-4	.50	4.09	2 15-16	1.86	22.59
1 7-16	.55	5.41	3 3-16	2.18	26.66
1 1-2	.60	5.89	3 7-16	2.56	30.94
1 11-16	.70	7.46	3 11-16	3.20	35.60
1 15-16	.86	9.83	3 15-16	3.75	40.59
2 3 16	1.06	12.53			

Larger sizes made to order.

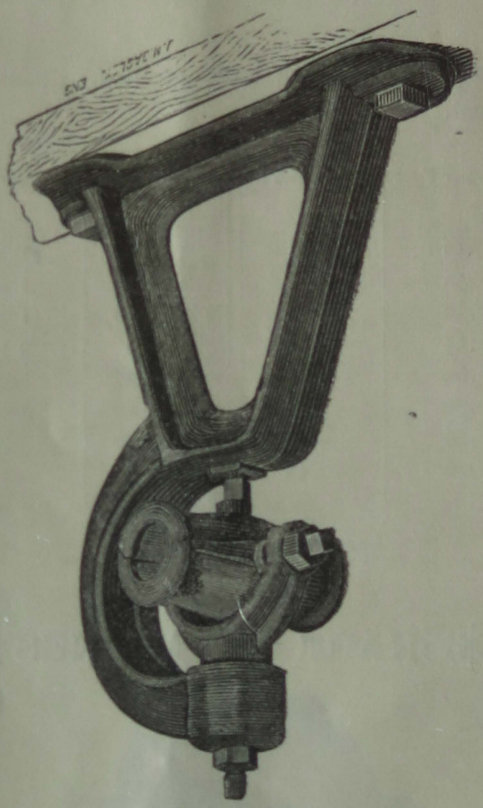
Shaft Couplings



[**Fig. 27.**]

Diam. of Shaft. Inches.	Diam. of Coupling. Inches.	Price per Pair.	Diam. of Shaft. Inches.	Diam. of Coupling. Inches.	Price per Pair.
1 3-16	7	$4 00	2 11-16	12	$10 00
1 7-16	7	5 00	2 15-16	12	11 00
1 11-16	8½	5 50	3 3-16	14	12 00
1 15-16	8½	6 00	3 3-8	14	14 00
2 3-16	12	7 00	3 7-8	14	17 00
2 7-16	12	8 50			

SELF-ADJUSTING DROP HANGERS. Babbitted.

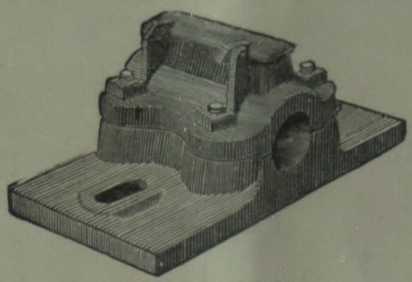


[Fig. 28.]

Size of Shaft.	12 In. Drop.	14 In. Drop.	17 In. Drop.	20 In. Drop.	24 In. Drop.	30 In. Drop.
1 3-16	$5 25	$5 50	$5 85	$6 45	$6 95	.....
1 7-16	5 50	5 70	6 00	6 65	7 50	.....
1 11-16	5 95	6 20	6 30	6 85	7 95	.....
1 15-16	7 00	7 25	7 60	7 90	8 40	.....
.....	.....	.....	.....	.....	.....	.....
2 3-16	8 00	8 25	9 35	9 60	10 15	.....
2 7-16	10 00	10 20	10 50	10 95	11 30	.....
2 11-16	10 80	11 15	11 65	12 55	13 45	.....
.....	.....	.....	.....	.....	.....	.....
2 11-16	.....	11 15	11 65	12 55	13 45	$16 45
2 15-16	.....	15 65	16 90	17 45	17 95	20 65
3 3-16	.....	16 25	18 20	19 30	20 45	23 50
3 7-16	.....	22 60	23 50	25 00	27 00	31 00

The Drop of a Hanger is the distance from top of Hanger to center of box.

JOURNAL BOXES.--BABBITTED.



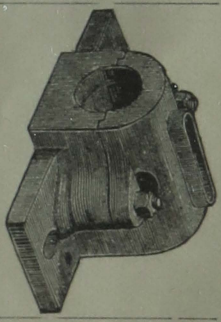
[Fig. 29.]

JOURNAL BOXES.--STANDARD.

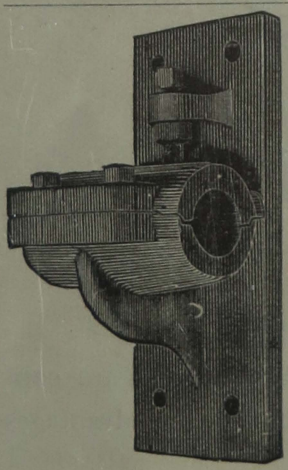
Size of Shaft. Inches.	Length of Box. Inches.	Price per Box.	Size of Shaft. Inches.	Length of Box. Inches.	Price per Box.
1 3-16	3¾	$1 50	2 11-16	8¼	$5 50
1 7-16	4½	1 75	2 15-16	9	6 50
1 11-16	5¼	2 75	3 3-16	9¾	7 50
1 15-16	6	3 25	3 7-16	10½	8 75
2 3-16	6¾	3 75	3 11-16	11¼	9 50
2 7-16	7½	4 75	3 15-16	12	10 50

JOURNAL BOXES.--LIGHT.

Size of Shaft. In.	Length of Box. In.	Price per Box.	Size of Shaft. In	Length of Box. In.	Price per Box.
1 3-16	4	$1 50	2 15-16	6	$5 00
1 7-16	4	1 75	3 3-16	6	5 75
1 11-16	4½	2 25	3 7-16	7	6 75
1 15-16	4½	2 50	3 11-16	8	7 25
2 3-16	5	3 00	3 15-16	8	8 00
2 7-16	5	3 75	. . . . .	. . . . .	. . . . .
2 11-16	5	4 25	. . . . .	. . . . .	. . . . .



[Fig. 30.]



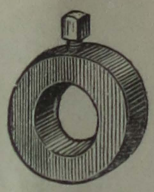
[Fig. 31.]

—o—

POST BOXES.--BABBITTED.

Diam of Shaft.	Length of Bearing.	Price per Box.	Diam of Shaft.	Length of Bearing.	Price per Box.
1 3-16	3¾	$2 00	2 11-16	8¼	$6 50
1 7-16	4½	2 25	2 15-16	9	7 50
1 11-16	5¼	3 25	3 3-16	9¾	8 50
1 15-16	6	4 25	3 7-16	10½	9 75
2 3-16	6¾	4 75	3 11-16	11¼	10 75
2 7-16	7½	5 75	3 15-16	12	12 00

COLLARS, with Set Screws.

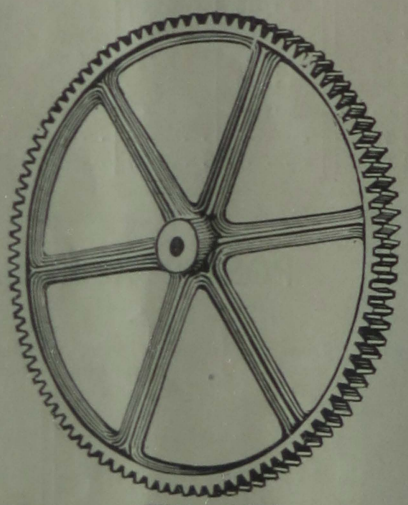


[**Fig. 32.**]

Diameter. Bore.	Price Each.	Diameter. Bore.	Price Each.	Diameter. Bore.	Price Each.
1	$ .70	1 11-16	$1.20	2 15-16	$2.25
1 3-16	.80	1 15-16	1.40	3 3-16	2.50
1 1-4	.90	2 3-16	1.60	3 7-16	2.75
1 7-16	1.00	2 7-16	1.80	3 11-16	3.00
1 1-2	1.10	2 11-16	2.00	3 15-16	3.25

Collars in halves made to order.

GEARING

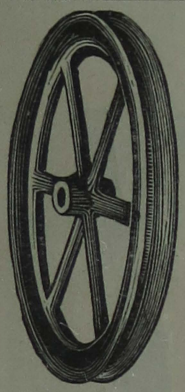


[**Fig. 33.**]

We have a large assortment of Gearing Patterns, and are constantly adding to our stock, in which are combined the advantages of strength, wearing surface and lightness.

SHEAVES

Sheaves for wire rope, filled with hard wood or tarred rope.



[**Fig. 34.**]

PRICES.

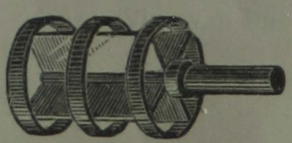
Diameter. inches	Size of Rope	Without Shaft or Boxes.	Without Boxes.	With Shaft and Boxes.	Weight.
30	½ to ⅞	$20 00	$21 50	$25 00	.....
48	⅝ to 1⅛	38 00	40 00	45 00	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

CAST IRON SHEAVES.

Diameter. inches.	Size of Rope. inches.	Without Shaft or Boxes.	Without Boxes.	With Shaft and Boxes.	Weight
6	1½	$1 25	$2 25	$5 50	.....
8	1	1 50	2 50	6 00	.....
10	2	2 50	4 00	8 00	.....
12	1½	2 50	3 50	7 50	.....
18	1	4 00	5 50	11 00	.....
18	2	5 00	7 00	12 00	.....
24	1½	8 00	10 00	15 00	.....

WING GUDGEONS,

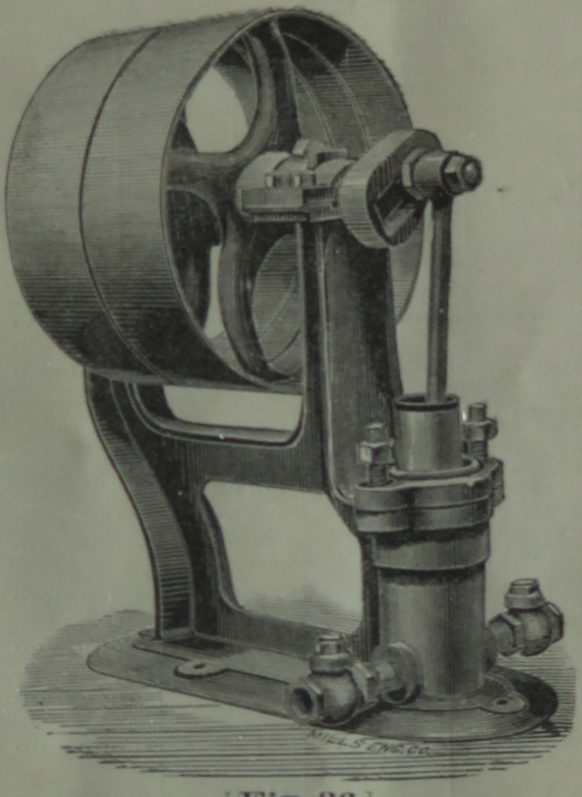
MILL SPINDLES, ADJUSTABLE TRAMPOTS, BAILS AND DRIVERS, STEPS, and all kinds of IRON WORK for **Flouring Mills.**



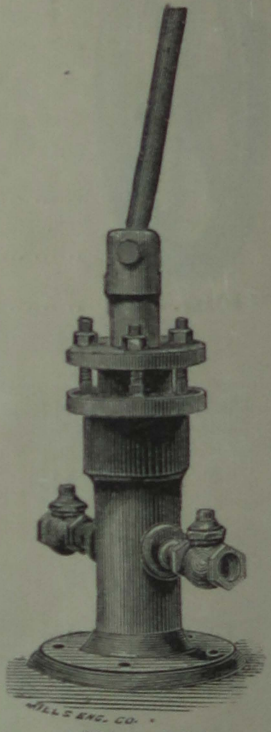
[**Fig. 35.**]

FEED PUMPS

FOR BOILERS.

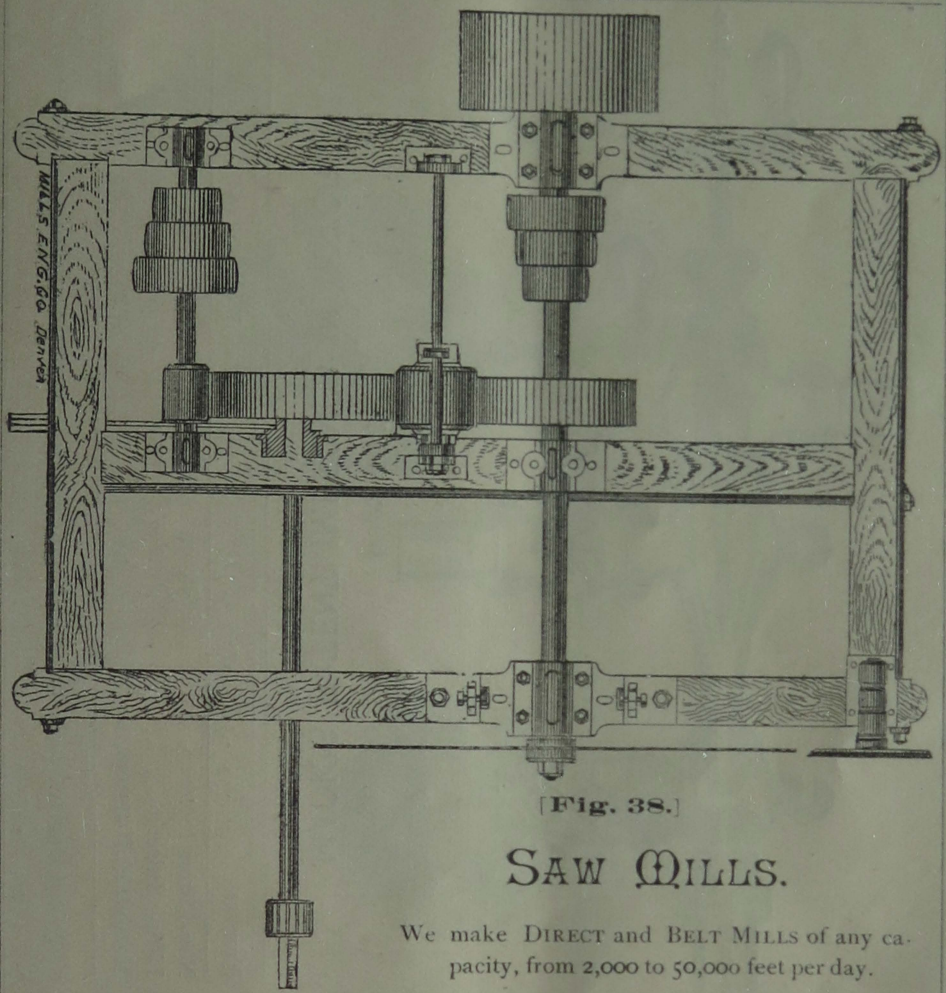


[**Fig. 36.**]



[**Fig. 37.**]

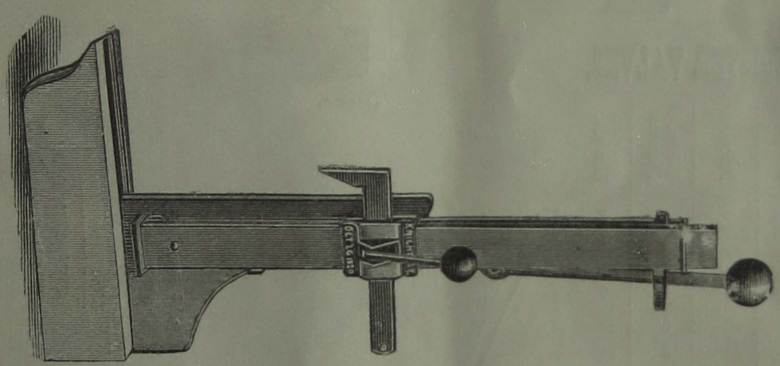
FIG. 36 represents our FEED PUMP FOR BOILERS, on bed plate, with adjustable crank head and tight and loose pulleys. These Pumps are very substantial, will feed boilers under any pressure, and have given entire satisfaction wherever used.



[Fig. 38.]

SAW MILLS.

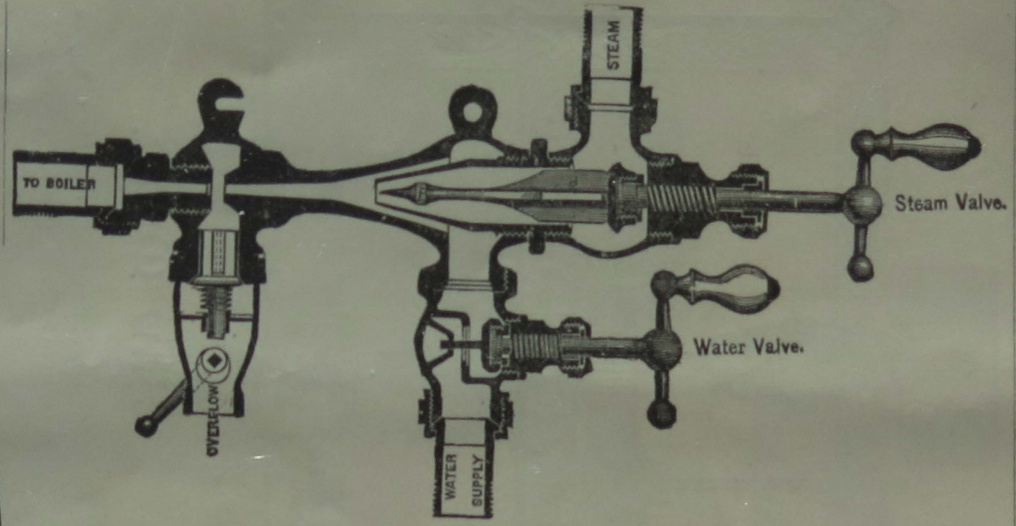
We make DIRECT and BELT MILLS of any capacity, from 2,000 to 50,000 feet per day.



[Fig. 39.]

KNIGHT'S PATENT EXCELSIOR SAW MILL DOGS,

For holding logs upon a Saw Mill Carriage while being sawed into lumber.



[Fig. 40.]

MACK'S PATENT IMPROVED INJECTORS.

Number	1	2	3	4	5
Non-Lifting Injector	$15 00	$20 00	$30 00	$40 00	$50 00
Lifting Injector	25 00	35 00	45 00	55 00	65 00
Nomin'l H. P. at from 30 to 80 lbs	10	20	40	50	75

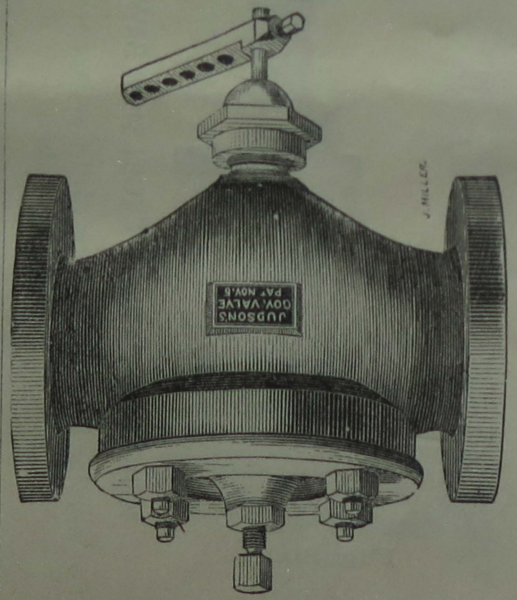
In ordering Injectors state whether the Injectors wanted are *lifting* or *non-lifting*.

REGISTER VALVES.

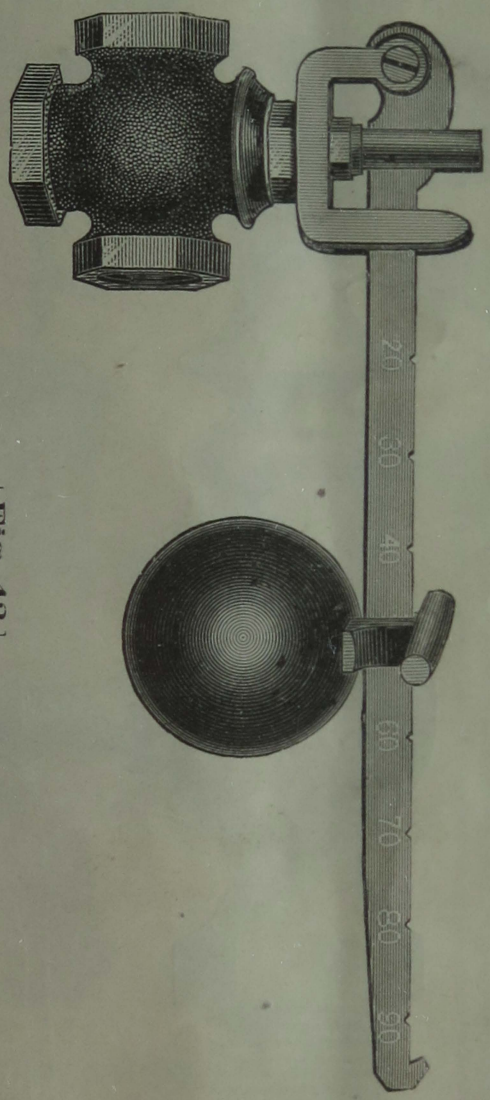
Size.	Price.	Diam. of Flanges.	Length.
1½	$ 9 00	5½	7
2	11 00	6	8½
2½	14 00	7	9½
3	18 00	8	12
3½	22 00	9	13
4	27 00	10	14
5	37 00	11	16

1½, 2 and 2½ inch screwed or flanged.

[Fig. 41.]



SAFETY VALVES



[Fig. 42.]

STEAM METAL.

SIZES :

¼, ⅜, ½, ¾, 1, 1¼, 1½ inches.

IRON, BRASS SEATED.

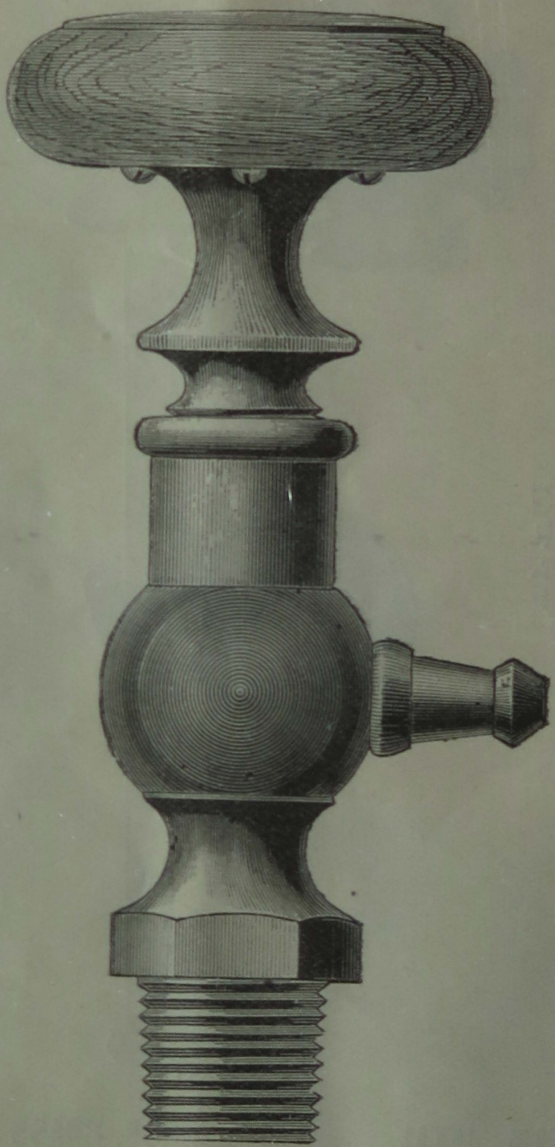
SIZES :

2, 2½, 3, 4 and 5 inches.

Compression Gauge Cocks.

With Wood Handle and Wood or Soft Metal Seat.

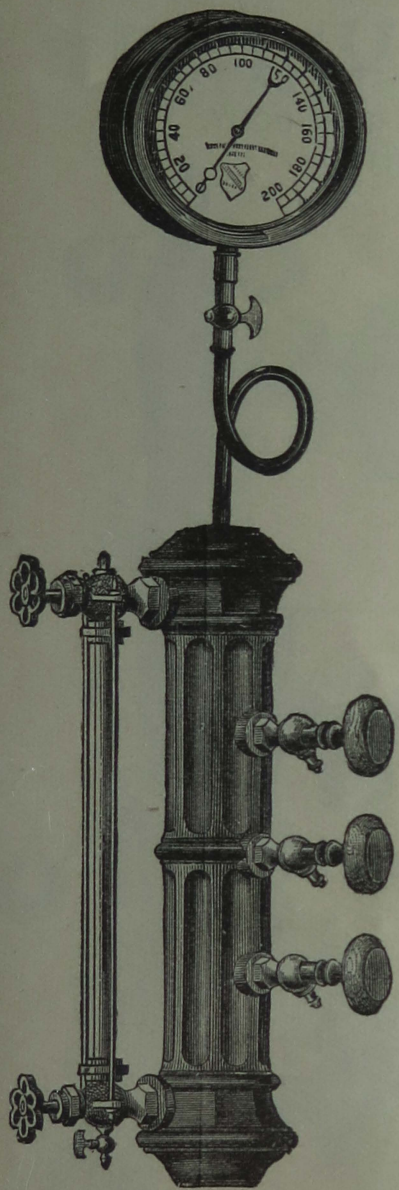
Sizes—⅜, ½ and ¾ inch Iron Pipe Thread, (Fig. 43).



[**Fig. 43.**]

MONTGOMERY'S PATENT GAUGE COCKS.

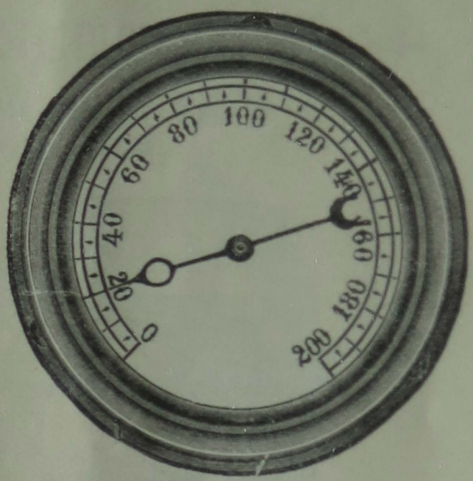
Sizes—⅜, ½ and ¾ inch.



[**Fig. 44.**]

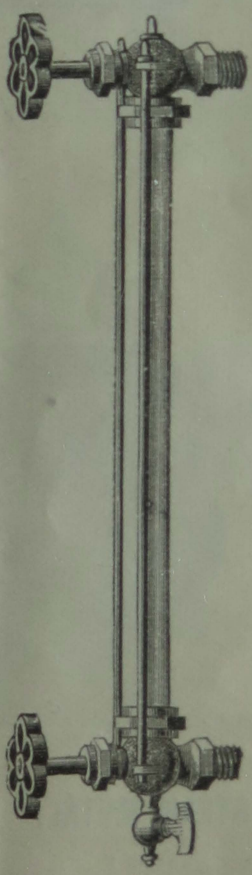
GAUGE COMBINATION.

Fig. 44 consists of a cast iron column with Glass Water Gauge, Steam Gauge, three Gauge Cocks, Syphon and Pet Cock. Any style of fitting may be used on this combination.



[**Fig. 45.**]

STEAM GAUGE.

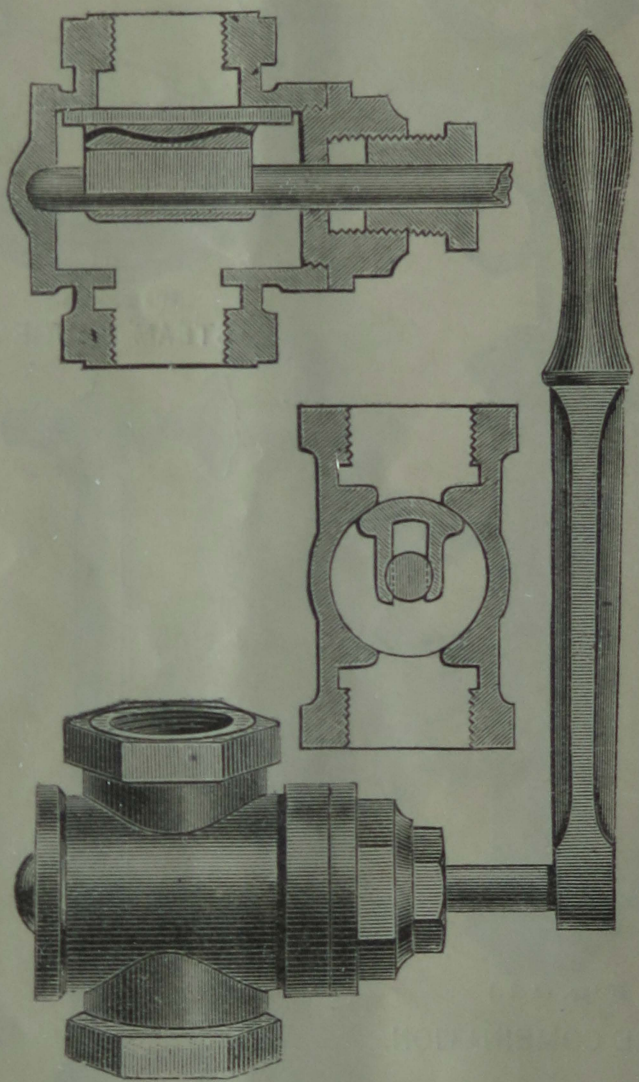


[**Fig. 46.**]

WATER GAUGE.

THROTTLE VALVES

STEAM METAL AND IRON BODY,
BRASS MOUNTED.



[Fig. 47.]

STEAM METAL.

SIZES:

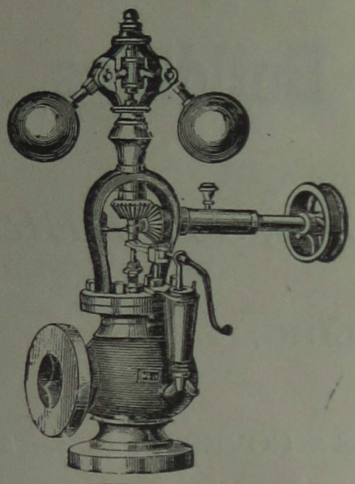
1, 1¼, 1½ and 2 inches.

IRON BODY, BRASS MOUNTED

SIZES:

1½, 2, 2½ and 3 inches.

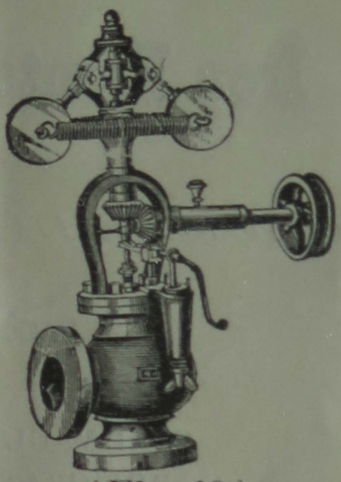
JUDSON GOVERNORS.



[**Fig. 48.**]

CLASS B, STANDARD.

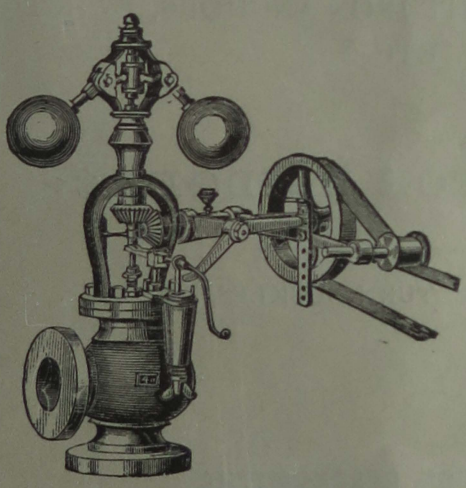
(Slow Speeded)



[**Fig. 49.**]

CLASS B, SPRING.

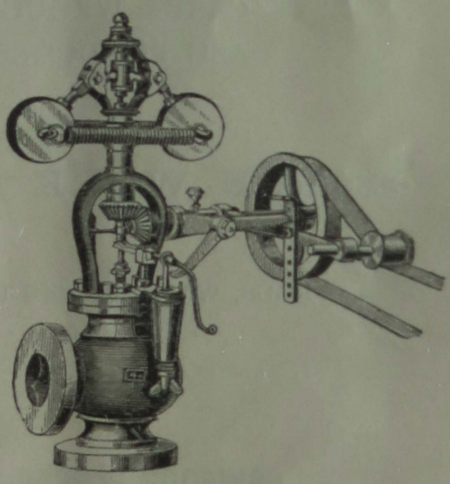
(Higher Speeded.)



[**Fig. 50.**]

CLASS A, STANDARD.

(Slow Speeded.)



[**Fig. 51.**]

CLASS A, SPRING.

(Higher Speeded.)

☞In ordering Governors, state which Class is wanted, whether Standard or Spring, Plain or Finished, and with or without Improved Globe or Angle Stop Valve.

Iron Fronts for Buildings,

COLUMNS, LINTELS, GIRDERS,

IRON RAILING,

COAL VAULT RINGS & COVERS,
AREA GRATINGS,
SIDEWALK AND VAULT LIGHTS,
SASH WEIGHTS,
CAST & WROUGHT IRON ANCHORS,
ASH PIT DOORS, ETC.

IRON WORK FOR BRIDGES,

RODS, WASHERS, BOLTS, TURN BUCKLES, ETC.

SWEDGE BLOCKS FOR BLACKSMITHS,

CIRCULAR SAW MANDRELS, ETC.

PRICE LIST

—OF—

STANDARD LAP-WELDED WROUGHT IRON PIPE,

FOR STEAM, GAS AND WATER.

INSIDE. Diameter. Inches	PLAIN. Price per Foot.	ENAMELED. Price per Foot.	GALVANIZED Price per Foot.	WEIGHT Per Foot. Pounds.
⅛	$ 08	$	$	.24
¼	08	11	11	.42
⅜	09	12	12	.56
½	11	15	15	.85
¾	13½	19	19	1.12
1	19	28	28	1.67
1¼	27	40	40	2.25
1½	33	47	47	2.69
2	46	64	64	3.66
2½	75	1 00	1 00	5.77
3	95	1 30	1 30	7.54
3½	1 25	1 70	1 70	9.05
4	1 50	2 05	2 05	10.72
4½	1 75	2 40	2 40	12.49
5	2 25	3 00	3 00	14.56
6	2 75	4 00	4 00	18.77
7	3 75	.....	.....	23.41
8	4 75	.....	.....	28.35
9	6 50	.....	.....	34.07
10	8 00	.....	.....	40.64
12	12 00	.....	.....	.....
13	.....	.....	.....	.....
14	.....	.....	.....	.....

PRICE LIST OF FITTINGS FOR STEAM, GAS AND WATER.

SIZE	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Elbows, C. I.	. .	. .	04	05	08	11	15	21	30	60	90	1 20	1 60	2 00	2 50	3 50	7 00	10 00	13 00	17 00	30 00
Elbows, Malleable	04	04	05	06	09	16	23	32	50	75	1 40	2 05	2 80	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Elbows, 45°	. .	. .	.	10	15	20	26	35	50	1 30	1 60	1 90	2 50	3 50	4 50	5 50	. . .	. .	. .	. . .	. .
Tees, C. I.	. .	.	06	08	12	16	22	31	45	90	1 35	1 80	2 40	3 00	3 75	5 25	10 00	15 00	20 00	25 00	45 00
Tees, Malleable	05	05	06	08	12	19	26	40	60	1 00	1 60	2 40	3 20	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Crosses, C. I.	. .	.	. .	.	15	20	30	42	60	1 20	1 80	2 40	3 20	4 00	5 00	7 00	14 00	20 00	26 00	34 00	. . .
Crosses, Malleable	. .		07	10	17	26	35	54	80	1 70	2 60	. .	3 75	. . .	. .	. . .	. . .	. . .	. . .	. . .	. .
Plugs	. .	03	03	04	05	06	08	11	16	25	45	60	80	1 00	1 30	1 80	3 75	5 50	7 50	. . .	. .
Caps	. .	03	03	05	08	11	15	22	30	45	65	85	1 15	1 45	1 75	2 30	3 10	4 35	5 60	6 80	. . .
Locknuts	. .	03	03	04	05	06	08	11	16	25	45	60	80	1 00	1 30	1 90	. . .	. .	. . .	. . .	. . .
Reducers	. .	04	04	06	10	15	21	28	44	64	1 00	1 50	2 00	2 50	3 00	4 00	. . .	. . .	. . .	. . .	. . .
Bushings	. .	05	05	06	07	08	10	14	20	30	45	60	80	1 00	1 30	1 90	3 75	5 50	. . .	. . .	. . .
Y Bends	. .	. .	. .	. .	30	40	60	90	1 25	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .
Return Bends, C. P. C. I.	. .	. .	. .	. .	14	16	28	40	55	1 50	2 25	. . .	5 00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Return Bends, O. P. C. I.	. .	. .	. .	. .	19	26	44	64	1 00	1 75	2 50	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .
Flange Unions	. .	. .	. .	. .	. .		80	1 00	1 20	1 50	1 90	2 30	2 80	3 50	5 00	6 50	8 00	10 00	12 00	14 00	. . .
Unions, Malleable	. .	14	16	19	23	28	38	48	72	1 35	2 10	3 00	4 00	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .
Sockets, Black	05	05	06	07	10	13	17	21	28	40	60	80	1 00	1 25	1 65	2 40	3 25	4 25	5 25	7 50	. . .
Sockets, Galvanized	06	06	8	10	13	18	25	32	40	55	80	1 05	1 40	1 75	2 25	3 25	. . .	. . .	. . .	. . .	. . .
Sockets, R. & L.	. .	03	04	06	10	15	21	28	44	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nipples, Close	05	05	06	07	09	10	14	17	25	56	75	1 00	1 25	1 50	2 00	2 75	4 00	5 75	. . .	. . .	. . .
Nipples, Long	07	07	09	10	11	15	20	25	35	75	95	1 25	1 60	2 00	2 60	3 60	. . .	. . .	. . .	. . .	. . .
Nipples, Close, R. & L.	. .	10	10	12	15	18	24	30	40	1 00	1 25	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nipples, Long, R. & L.	. .	12	14	16	20	24	35	46	60	1 30	1 60	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Extra Pipe Threads	. .	05	05	05	05	05	06	07	08	10	15	20	25	35	45	55	70	85	1 00	1 25	1 50	. . .

MANUFACTURERS' REVISED PRICE LIST

—OF—

LAP-WELDED BOILER TUBES.

Subject to Change Without Notice.

Outside Diameter. Inches.	Price per Foot.	Wire Gage Numbers.	Weight per Foot. Pounds.
1	$ 26	15	0.71
1¼	26	15	0.90
1½	25	14	1.25
1¾	25	13	1.66
2	25	13	1.98
2¼	29	13	2.24
2½	32	12	2.75
2¾	35	12	3.04
3	38	12	3.33
3¼	44	11	3.96
3½	50	11	4.27
3¾	56	11	4.59
4	64	10	5.32
4½	74	10	6.01
5	90	9	7.23
6	1 30	8	9.35
7	1 70	8	12.43
8	2 25	8	15.11
9	2 75	7½	18.00
10	3 25	6½	22.19
11	3 75	5	25.49
12	4 25	4½	28.51
13	4 75	4	32.21
14	5 50	3½	36.27
15	6 00	3	40.62
16	*Prices on Application.*	2½	45.20
17		2	49.90
18		1½	54.82
19		1	59.48
20		0½	66.76
21		0	73.40

EXTRA LENGTHS.—Tubes 8 inches diameter and less, over 20 feet long, are 10 per cent. extra. Tubes 9 inches diameter and larger, no extra for any length. Tubes Safe-ended when required, at manufacturers' list for Safe Ends.

MANUFACTURERS' STANDARD LIST

—OF—

MACHINE BOLTS

WITH SQUARE HEADS AND NUTS. FINISHED POINTS.

PER HUNDRED.

Length.	¼	5-16	⅜	7-16	½	9-16 & ⅝	¾
1 1-2	$2 80	$3 20	$3 60	$4 60	$5 00	$7 20	$10 50
2	2 90	3 35	3 80	4 90	5 30	7 70	11 10
2 1-2	3 00	3 50	4 00	5 20	5 60	8 20	11 70
3	3 10	3 65	4 20	5 50	5 90	8 70	12 30
3 1-2	3 20	3 80	4 40	5 80	6 20	9 20	12 90
4	3 30	3 95	4 60	6 10	6 50	9 70	13 50
4 1-2	3 40	4 10	4 80	6 40	6 80	10 20	14 10
5	3 50	4 25	5 00	6 70	7 10	10 70	14 70
5 1-2	3 60	4 40	5 20	7 00	7 40	11 20	15 30
6	3 70	4 55	5 40	7 30	7 70	11 70	15 90
6 1-2	3 80	4 70	5 60	7 60	8 00	12 20	16 50
7	3 90	4 85	5 80	7 90	8 30	12 70	17 10
7 1-2	4 00	5 00	6 00	8 20	8 60	13 20	17 70
8	4 10	5 15	6 20	8 50	8 90	13 70	18 30
9	.....	.....	6 60	9 10	9 50	14 75	19 50
10	.....	.....	7 00	9 70	10 10	15 75	20 70
11	.....	.....	7 40	10 30	10 70	16 75	21 90
12	.....	.....	7 80	10 90	11 30	17 75	23 10
13	.....	.....	.....	.....	11 90	18 75	24 30
14	.....	.....	.....	.....	12 50	19 75	25 50
15	.....	.....	.....	.....	13 10	20 75	26 70
16	.....	.....	.....	.....	13 70	21 75	27 90
17	.....	.....	.....	.....	14 30	22 75	29 10
18	.....	.....	.....	.....	14 90	23 75	30 30
19	.....	.....	.....	.....	15 50	24 75	31 50
20	.....	.....	.....	.....	16 10	25 75	32 70

PRICE LIST

—OF—

HOT PRESSED SQUARE NUTS.

200 POUND KEGS.

Discount . . . . . Cts. per Pound.

Width.	Thickness.	Hole.	Size Bolt.	Price per Lb. Cents.	No. in 200 lbs.
1-2	1-4	7-32	1-4	20	13360
5-8	5-16	9-32	5-16	17	7180
3-4	3-8	11-32	3-8	15	4100
7-8	7-16	13-32	7-16	13 1-2	2700
7-8	1-2	7-16	1-2	13 1-2	2240
1	1-2	7-16	1-2	12 1-2	1680
1 1-8	1-2	1-2	9-16	12 1-2	1300
1 1-8	5-8	9-16	5-8	12 1-2	1160
1 1-4	5-8	9-16	5-8	12	880
1 3-8	3-4	11-16	3-4	12	676
1 1-2	3-4	11-16	3-4	11 1-2	520
1 5-8	7-8	13-16	7-8	11 1-2	370
1 3-4	7-8	13-16	7-8	11 1-2	326
1 3-4	1	7-8	1	11 1-2	278
2	1	7-8	1	11 1-2	206
2	1 1-8	1	1 1-8	11 1-2	192
2 1-4	1 1-8	1	1 1-8	11 1-2	170
2 1-4	1 1-4	1 1-8	1 1-4	12 1-2	128
2 1-2	1 1-4	1 1-8	1 1-4	12 1-2	104
2 3-4	1 3-8	1 1-4	1 3-8	12 1-2	80
2 3-4	1 1-2	1 3-8	1 1-2	13	72
3	1 1-2	1 3-8	1 1-2	13	64
3	1 5-8	1 7-16	1 5-8	13	52
3 1-4	1 3-4	1 9-16	1 3-4	14	43
3 1-2	1 7-8	1 11-16	1 7-8	14	33
3 3-4	2	1 3-4	2	14	28
4	2 1-8	1 7-8	2 1-8	15	24
4	2 1-4	2	2 1-4	15	20

TESTIMONIALS

OFFICE OF SMALL HOPES & BOREEL LEASING CO.,
AND GILT EDGE LEASE,
LEADVILLE, COLO., Aug. 7, 1883.

F. M. Davis, Proprietor Denver Foundry and Machine Co., Denver, Colo.:

DEAR SIR.—In reply to your favor 4th inst., I would say that several years constant use of various makes of Hoisters, including yours, has demonstrated to my satisfaction that for safety, durability and economy, both in the matter of repairs and in use of fuel, your make so far excels any other, that an intended purchaser can not afford to take into consideration the question of first cost in a choice of the many makes on the market. One of your 10x10 Cylinder Hoisters, over four years in use, on a recent trial with seven pounds of steam, raised an iron bucket full of ore (weight 1300 lbs.) from a 200 foot level. This occured on the Robert Emmett Mine, Leadville, aud can be substantiated by the engineer and foreman of the mine. The Engine, as regards any inherent fault in the make, is as good as the day it came from the shop. Careless engineers have damaged it some, but aside from that it is perfect. I cordially endorse your machinery to all intended purchasers.

Respectfully,

J. C. FENLON, SUPT.

LEADVILLE, COLORADO, October 6, 1881.

Denver Foundry and Machine Company, Denver, Colorado:

GENTS.—The small Hoister purchased from you a short time ago gives perfect satisfaction, and I have no hesitation in saying that they are the best Hoisters in the market. It is now in use on the Preston Mine, on Long and Derry Hill. It will do *more work*, and do it easier, than any other Hoister of the same size, and I take pleasure in recommending it.

Very Truly Yours,

G. M. SILSBEE.

ROBERT E. LEE SILVER MINING CO.,
LEADVILLE, COLORADO, Oct. 1, 1883.

F. M. Davis, Esq., Proprietor Denver Foundry and Machine Co.:

DEAR SIR.—We have been using four of your Hoisting Engines for over three years, and we consider them the best in the camp, requiring but little repairs,

and very economical in the use of fuel. I cheerfully recommend them to any person desiring a first class machine.

Very Respectfully,

A. E. GUILBAULT,
Manager Robert E. Lee Mining Co.

LEADVILLE, COLORADO, October 18, 1883.

Denver Foundry and Machine Co., Denver, Colo.:

GENTLEMEN.—In reply to your enquiry concerning the Hoister purchased from you, and now in use by us, I will say that it gives the best of satisfaction. We consider it very economical and efficient in all respects.

Yours Respectfully,

FRANK BULKLEY,
Supt. New Pittsburgh Mining Co.

LEADVILLE, COLORADO, November 3, 1883.

F. M. Davis, Esq., Proprietor Denver Foundry & Machine Co., Denver, Colo.:

DEAR SIR.—More than a year ago we purchased one of your Fifty Horse Power Boilers and a Forty Horse Power Engine and Hoister, and in the year's steady run we have given both Boiler and Engine the severest tests, and find they do their work perfectly, with less wear than any machinery of the kind I ever used. We are highly pleased with them.

Yours Respectfully,

N. N. ROBERTSON,
Manager Roseville Alta Con. Mining Co.

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136 EAST EIGHTH ST., LEADVILLE, COLO.

F. M. Davis, Esq., Denver, Colo.:

DEAR SIR.—The Hoisting Engine purchased of you through W. Penberthy, Esq., has been in almost constant use since last spring. It proves in *every respect* to be all that Mr. Penberthy recommended. On my part it is with satisfaction and pleasure that I state (in my judgment) no Hoisting Engine in the West can vie with it in general excellence.

Respectfully,

ROBERT B. ESTEY.

LEADVILLE, COLORADO, September, 29, 1883.

F. M. Davis, Esq., Proprietor Denver Foundry & Machine Co.:

DEAR SIR. –There has been on the Emmett Shaft one of your Engines for the past three years, and I take great pleasure in stating that it has given perfect satisfaction. I have one on the Goneabroad, put up some four months ago, and it is perfect in all its appointments. It has proven to me that the Engines mentioned are unequalled for mining purposes.

Very Truly,

JOHN T. ELKINS,
Manager Small Hopes & Boreel Mining Co.

LEADVILLE, COLORADO, October 5, 1883.

F. M. Davis, Esq., Denver, Colo.:

DEAR SIR.—I have been using one of your Twenty Horse Power Hoisters for over a year, and it has given me entire satisfaction. I am prepared to state that your machine is the most economical in the use of fuel of any I have ever used, and the repairs have not cost me over five dollars for the time I have been using it. Respectfully Yours,

W. B. RAGLAND,
Manager of Gunnison Mine.

IRON HILL CONSOLIDATED MINING CO.,
LEADVILLE, COLORADO, Sept. 27, 1883.

F. M. Davis, Esq., Proprietor Denver Foundry & Machine Co.:

DEAR SIR.—The two Twenty Horse Power Hoisting Engines which we bought of you about a year ago, have given entire satisfaction. We find them capable of doing very heavy work, and also easily kept in order, and on the whole a very superior machine.

Very Truly Yours,

JOHN F. CAMPION, GEN'L MANAGER.

REFERENCES.

☞Below we give the names of a few of the parties and mines using our Hoisters and Engines:

Iron Hill Consolidated Mining Co., (3)	Leadville.
Forest City Mining Co.,	"
Robert B. Estey,	"
Joseph Doyle,	"
J. H. Walker,	"
Col. Sellers Mine,	"
Robert E. Lee Mine, (4)	"
The Goneabroad Mining Co,	"
C. A. Otis,	"
G. M. Silsbee,	"
John E. Izard,	"
Little Mama Mining Co.,	"
Big Pittsburgh Mining Co., (2)	"
Small Hopes Consolidated Mining Co.,	"
Marion Mining Co.,	"
Ocean Mine,	"
Miami Mine	"
Black Prince,	"
Lowland Chief	"
Highland Chief,	"
Hibernia Mine,	"

Eudora Mine..... Leadville.
Compromise Mine..... "
Denver City Mine..... "
Ætna Mine..... "
Vining Mine..... "
Black Cat, ... "
Little Diamond,..... "
Robert Ingersol, ... "
Silver Cord,..... "
Robert Emmett Mine..... "
Alleghany Mine..... "
Mystic Mine..... "
Seneca Mine..... "
American Mining & Smelting Co., ... "
Geo. Bowen,.....Silver Cliff, Colo.
S. B. Morgan,.....Robinson, Colo.
Colorado Coal & Iron Co.,.....Oak Creek, Colo.
Valley City Mining Co.,.....Silver Cliff, Colo.
Fox & Patterson,.....Marshall, Colo.
Sulphuret Consolidated Mining Co.,.....Lake City, Colo.
Mountain View Mining Co.,.....Silver Cliff, Colo.
Herbert R. Smith, (2).....Kokomo, Colo.
San Juan & New York Mining & Smelting Co., ...Silverton, Colo.
Song Bird Mining Co., ...Silver Cliff, Colo.
J. W. Smith,.....London Junction, Colo.
Winona Gold Mining Co.,.....Boulder, Colo.
Solid Silver Mining Co., ...Silver City, N. M.
Cash Entra Mine, ...Los Cerrillos, N. M.
American Mine,.....Sunshine, Colo.
Mimbres Mining Co.,.....Georgetown, N. M.
Gold Park Mining Co.,.....Mitchell, Colo.
Nichols & Hoagland, ...Golden, Colo.
G. L. Havens,.....Kelton, Utah.
Iron Silver Mining Co.,.....Leadville, Colo.
West Pewbick Mining Co.,.....Central City, Colo.
May Queen,.....Leadville, Colo.
Wm. Wallace Mine,..... " "
Roseville-Alta Consolidated Mining Co..... " "
Juliana Lode Mining Co.,.....Querida, Colo.
Ruby Mine,.....Leadville, Colo.
South Park Coal Co.,.....Como, Colo.
Denver & Rio Grande R'y Co., (100 H. P. Engine,).....Salt Lake City, Utah.
Denver & Rio Grande R'y Co , (100 H. P. Engine,).....Salida, Colo.
B. Bowen,.....Webster, Colo.
J. K. Mullen & Co., ...Denver, Colo.
Gazette Publishing Co.,.....Colorado Springs, Colo.

Boston Reduction Works,.....Leadville, Colo.
Rolling Mill Co.,.....Denver, Colo.
W. J. Sheik & Co.,.....Golden, Colo.
Hodges, Pritchard & Co.,..... " "
C. F. Abby, ...Canon City, Colo.
French Smelting Co.,.....Golden, Colo.
Leadville Smelting Co.,.....Leadville, Colo.
C. H. McPherson,.....Canon City, Colo.
Thompson & Annis,.....Denver, Colo.
A. M. Morrison & Co.,.....Buffalo Creek, Colo.
John Enoch,.....Chama, N. M.
S. H. Veatch, ...Buffalo Creek, Colo.
Thos. Saxton,.....Leadville, Colo.
Dawson & Mitchell,.....Webster, Colo.
S. S. Woodbury,.....Beaver Brook, Colo.
H. R. Clough,.....Denver, Colo.

WEIGHT OF ONE SQUARE FOOT OF SHEET IRON, STEEL OR COPPER.

Birmingham Gauge.

No. of Gauge.	Thickness in Inches.		Iron.	Steel.	Copper.
	In Decimals.	In Fractions.			
0000	.454	29-64	18.35	18.54	20.56
000	.425	55-128	17.18	17.35	19.25
00	.38	49-128	15.36	15.51	17.21
0	.34	11-32	13.74	13.87	15.40
1	.30	19-64	12.13	12.25	13.59
2	.284	9-32	11.48	11.59	12.86
3	.259	33-128	10.47	10.57	11.73
4	.238	31-128	9.62	9.72	10.78
5	.220	7-32	8.89	8.98	9.96
6	.203	.....	8.21	8.29	9.19
7	.180	23-128	7.27	7.35	8.15
8	.165	.....	6.70	6.74	7.47
9	.148	19-128	5.98	6.04	6.70
10	.134	.....	5.42	5.47	6.07
11	.120	15-128	4.85	4.90	5.44
12	.109	7-64	4.41	4.45	4.93
13	.095	3-32	3.84	3.88	4.30
14	.083	.....	3.35	3.39	3.76
15	.072	.....	2.91	2.94	3.26
16	.065	1-16	2.63	2.65	2.94
17	.058	.....	2.34	2.37	2.63
18	.049	.....	1.98	2.00	2.22
19	.042	.....	1.70	1.71	1.90
20	.035	.....	1.41	1.43	1.58
21	.032	1-32	1.29	1.30	1.45
22	.028	.....	1.13	1.14	1.27
23	.025	.....	1.01	1.02	1.13
24	.022	.....	.889	.898	1.00
25	.020	.....	.808	.816	.91
26	.018	.....	.722	.735	.81
27	.016	1-64	.647	.653	.74
28	.014	.....	.568	.572	.63
29	.013	.....	.525	.531	.59
30	.012	.....	.485	.490	.54
31	.010	.....	.404	.408	.45
32	.009	.....	.364	.367	.40
33	.008	1-128	.323	.326	.37
34	.007	.....	.283	.286	.32

WEIGHT OF ROUND AND SQUARE ROLLED IRON.

3-16 inch to 7 inch Diameter. One Foot in Length.

Diameter in Inches.	Weight of Round Iron.	Weight of Square Iron.
3-16	.0933	.1188
1-4	.1659	.2112
5-16	.2592	.3300
3-8	.3733	.4753
7-16	.5080	.6469
1-2	.6636	.8449
9.16	.8398	1.069
5-8	1.037	1.320
11-16	1.255	1.597
3-4	1.493	1.901
13-16	1.752	2.231
7-8	2 032	2.587
15-16	2.333	2.970
1	2.654	3.380
1 1-8	3.359	4.277
1 1-4	4.147	5.281
1 3-8	5.028	6.389
1 1-2	5.922	7.604
1 5-8	7.009	8.924
1 3-4	8.129	10.350
1 7-8	9 331	11.881
2	10.617	13.518
2 1-4	13.437	17.109
2 1-2	16.589	21.122
2 3-4	20.073	25.558
3	23.888	30.416
3 1-4	28.035	35.697
3 1-2	32.514	41.400
3 3-4	37.325	47.525
4	42.468	54.073
4 1 4	47.942	61.043
4 1-2	53.748	68.436
4 3-4	59.886	76.251
5	66.355	84.489
5 1-4	73.157	93.149
5 1-2	80.290	102.232
5 3-4	87.755	111.737
6	95.552	121.164
6 1-2	112.140	142.786
7	130.057	165.598

WEIGHT OF FLAT ROLLED IRON.

One Foot in Length.

Width in Inches.	THICKNESS IN INCHES.															
	1/8	3-16	1/4	5-16	3/8	7-16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2
1/2	0.21	0.32	0.42	0.52	0.63	0.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5/8	0.26	0.39	0.52	0.66	0.79	0.92	1.05	.....	.....	.....	.....	.....	.....	.....	.....	.....
3/4	0.31	0.48	0.63	0.79	0.95	1.10	1.26	1.58	.....	.....	.....	.....	.....	.....	.....	.....
7/8	0.36	0.55	0.73	0.92	1.10	1.29	1.47	1.84	2.21	.....	.....	.....	.....	.....	.....	.....
1	0.42	0.63	0.83	1.04	1.25	1.46	1.66	2.08	2.49	2.91	.....	.....	.....	.....	.....	.....
1 1/8	0.47	0.69	0.94	1.17	1.38	1.61	1.88	2.35	2.83	3.26	3.76	.....	.....	.....	.....	.....
1 1/4	0.52	0.73	1.04	1.32	1.56	1.82	2.08	2.60	3.12	3.64	4.16	4.70	.....	.....	.....	.....
1 3/8	0.58	0.87	1.16	1.45	1.74	2.03	2.32	2.90	3.48	4.06	4.64	5.22	5.80	.....	.....	.....
1 1/2	0.63	0.95	1.26	1.58	1.90	2.21	2.53	3.16	3.80	4.43	5.06	5.70	6.33	.....	.....	.....
1 5/8	0.68	1.03	1.37	1.71	2.05	2.40	2.74	3.43	4.11	4.80	5.49	6.17	6.86	8.23	.....	.....
1 3/4	0.73	1.11	1.47	1.84	2.21	2.58	2.95	3.69	4.43	5.17	5.91	6.65	7.39	8.87	.....	.....
2	0.84	1.26	1.68	2.11	2.53	2.95	3.37	4.22	5.06	5.91	6.75	7.60	8.44	10.13	11.82	.....
2 1/4	0.95	1.42	1.90	2.37	2.85	3.32	3.80	4.75	5.70	6.65	7.60	8.55	9.50	11.40	13.30	15.20
2 1/2	1.05	1.58	2.11	2.64	3.16	3.69	4.22	5.28	6.33	7.39	8.44	9.50	10.56	12.67	14.78	16.89
2 3/4	1.16	1.74	2.32	2.90	3.48	4.06	4.64	5.80	6.97	8.13	9.29	10.45	11.61	13.94	16.26	18.58
3	1.26	1.90	2.53	3.16	3.80	4.43	5.06	6.33	7.60	8.87	10.13	11.40	12.67	15.20	17.74	20.27
3 1/4	1.37	2.06	2.74	3.43	4.11	4.80	5.49	6.86	8,23	9.61	10.98	12.35	13.73	16.47	19.22	21.96
3 1/2	1.47	2.22	2.95	3.69	4.43	5.17	5.91	7.39	8.87	10.35	11.82	13.30	14.78	17.74	20.69	23.65
4	1.69	2.52	3.38	4.20	5.06	5.90	6.75	8.44	10.13	11.80	13.51	15.20	16.89	20.27	23.65	27.03
4 1/2	1.90	2.84	3.80	4.75	5.70	6.64	7.60	9.50	11.40	13.30	15.20	17.10	19.00	22.81	26.61	30.41
5	2.10	3.16	4.22	5.28	6.32	7.38	8.44	10.56	12.67	14.78	16.89	19.00	21.12	25.34	29.57	33.79
5 1/2	2.32	3.47	4.64	5.79	6.95	8.10	9.29	11.58	13.94	16.21	18.52	20,91	23.23	27.88	32.52	37.17
6	2.52	3.80	5.06	6.32	7.60	8.86	10.12	12.66	15.20	17.74	20.26	22.80	25.34	30.40	35.42	40.54

RULES

—FOR—

CALCULATING SPEED OF PULLEYS.

PROBLEM I.

The diameter of the driver and driven being given, to find the number of revolutions of the driven :

RULE.—Multiply the diameter of the driver by its number of revolutions, and divide the product by the diameter of the driven ; the quotient will be the number of revolutions.

PROBLEM II.

The diameter and the revolutions of the driver being given, to find the diameter of the driven, that shall make any given number of revolutions in the same time.

RULE.—Multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven ; the quotient will be its diameter.

PROBLEM III.

To ascertain the size of the driver.

RULE.—Multiply the diameter of the driven by the number of revolutions you wish to make, and divide the product by the revolutions of the driver ; the quotient will be the size of the driver.

The above rules are practically correct ; though, owing to the slip, elasticity and thickness of the belt, the circumference of the driven seldom runs as fast as the driver.

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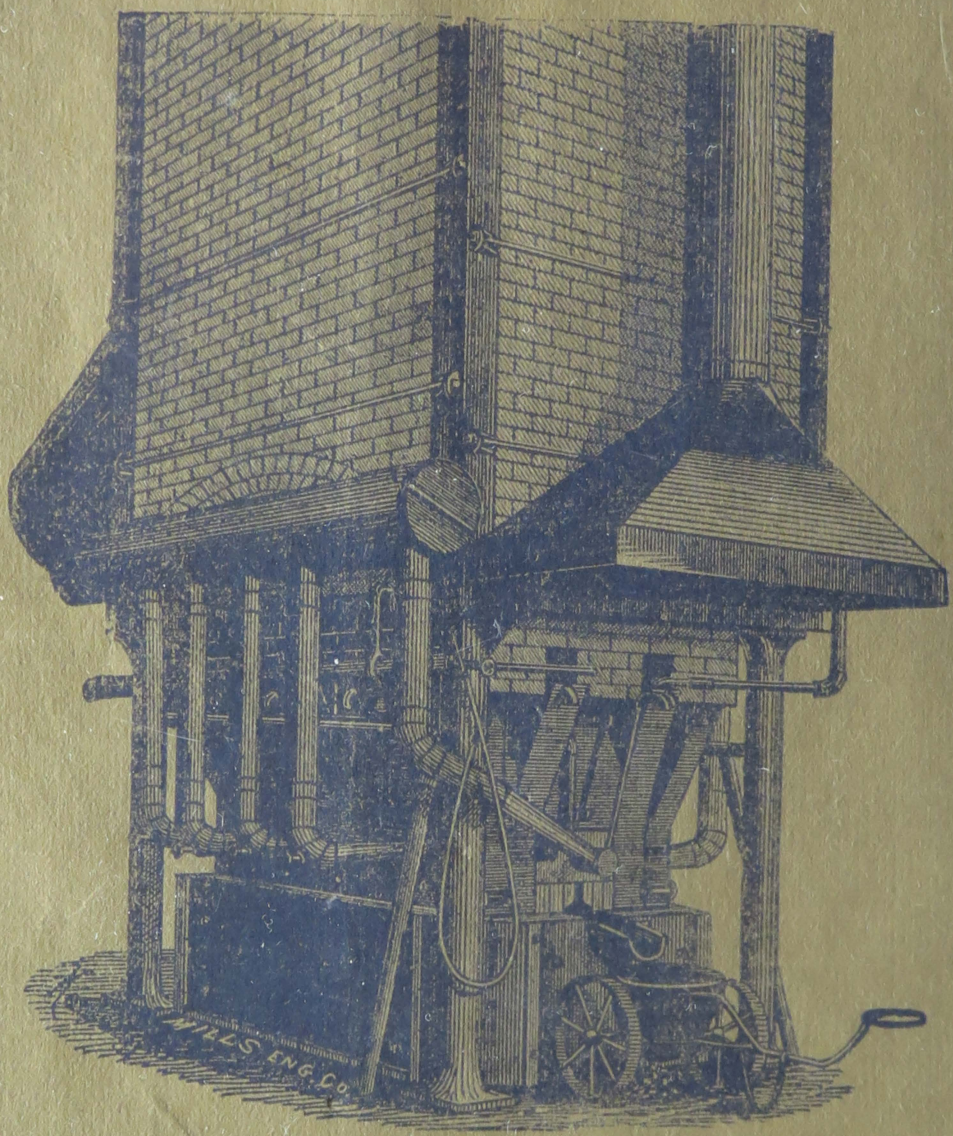
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